



# PRACTICAL LABORATORY INCUBATOR (WITH UV STERILIZATION)

# **Practical Laboratory Incubator (with UV Sterilization) - ToronCubator™ MU-P**

The ToronCubator™ MU-P is a programmable mould incubator built for laboratory applications that require simultaneous temperature and humidity control. Spanning four chamber sizes from 150 L to 800 L, this laboratory incubator integrates an imported humidity sensor, an electric heating humidification system, and a large-capacity water tank — delivering a humidity range of 50–90% RH with  $\pm 5\%$  fluctuation alongside a 4–60 °C temperature range. For research teams studying fungal growth, material degradation, or humidity-sensitive biological processes, the ToronCubator™ MU-P provides the dual environmental control that standard laboratory incubators cannot.

The ToronCubator™ MU-P is a full-featured mould incubator and humidity-controlled laboratory incubator designed for scientific environments where temperature alone is insufficient to replicate real-world biological conditions. Unlike conventional biochemical incubators, this series adds active humidity regulation — making it a distinct instrument category suited to mould propagation, fungal ecology studies, material testing, and regulatory-grade environmental simulation.

The outer shell is manufactured from cold-rolled steel with a static spray-plastic coating, while the interior working chamber uses mirror-finished stainless steel for durability and straightforward maintenance. Shelving is optionally adjustable to accommodate varying sample heights, and each unit ships with a set number of standard shelves with a defined maximum configuration. The double-door design — a solid outer door paired with an inner observation glass door — allows researchers to view chamber contents and monitor running conditions without disrupting the internal environment.

Dual 30 mm test ports on both chamber sides provide access for external sensors, data cables, or fluid tubing without compromising the sealed internal atmosphere. A mechanical door lock secures the working chamber between access events. The PAMMA II control system presents real-time temperature and elapsed time on a dedicated LCD display, with an over-temperature alarm that flags out-of-range conditions before sample integrity is affected.

The integrated refrigeration system uses a well-known international brand compressor with a non-CFC refrigerant, meeting current environmental standards for laboratory incubator refrigerants. Power recovery functionality retains all programmed run data and settings following any power interruption — a practical safeguard for long-duration mould incubation cycles

that cannot be restarted without consequence.

## APPLICATIONS

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### **Practical Laboratory Incubator (with UV Sterilization) - ToronCubator™ MU-P Applications**

The ToronCubator™ MU-P is purpose-built for laboratory workflows where both temperature and relative humidity must be actively controlled. Its combined mould incubator and humidity chamber capability supports a wide range of B2B scientific and industrial applications.

- Mould & Fungal Research: controlled propagation of mould cultures, fungal growth kinetics, and spore viability studies under defined temperature and humidity conditions.
- Material & Product Testing: accelerated humidity exposure testing for packaging, textiles, electronics, and other materials requiring ASTM or ISO environmental simulation.
- Microbiology & Mycology: culture incubation for humidity-sensitive organisms that require stable RH alongside precise thermal control across extended run times.
- Food Science & Safety: shelf-life studies, spoilage microbiology, and mould contamination testing under humidity conditions that replicate real storage environments.
- Pharmaceutical Stability: short-term ICH-aligned stability screening of moisture-sensitive compounds and solid dosage forms at controlled temperature and humidity.
- Agricultural Science: seed germination, plant pathogen incubation, and post-harvest disease studies requiring simultaneous temperature and humidity regulation.



## FEATURES

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### **Practical Laboratory Incubator (with UV Sterilization) - ToronCubator™**

#### **MU-P Key Features**

- Cold-rolled steel exterior with static spray-plastic finish; mirror stainless steel interior working chamber with optionally adjustable shelving
- PAMMA II control system with LCD display showing real-time temperature and elapsed time, plus over-temperature alarm for process monitoring
- Centrifugal fan for uniform, stable air circulation throughout the working chamber across all shelf positions
- Double-door design with solid outer door and inner observation glass door for sample monitoring without opening the main chamber
- Dual side-mounted test ports with 30 mm internal diameter for sensor cables, probes, or tubing pass-through access
- Well-known international brand compressor with non-CFC refrigerant and integrated refrigeration system for environmentally compliant cooling
- Mechanical door lock for physical chamber security between access events
- Imported humidity sensor with electric heating humidification system and large-capacity water tank; humidity range 50-90% RH, fluctuation  $\pm 5\%$  RH
- Programmable multi-segment design supporting up to 30 segments and 99 repeatable cycles for complex temperature and humidity profile protocols
- Power recovery function retains all programmed data and active run settings after any power interruption or system halt
- UV lighting included in the working chamber, purpose-built for mould incubator and mycology laboratory applications



## THEORY & METHOD

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### Theory and Method

#### PAMMA II Dual-Parameter Control

The ToronCubator™ MU-P operates on a PAMMA II microprocessor control platform that independently regulates both chamber temperature and relative humidity. The system continuously samples dedicated sensors for each parameter and adjusts heating, cooling, and humidification outputs accordingly. Temperature resolution is 0.1 °C. At 25 °C, fluctuation is held to  $\pm 0.5$  °C and uniformity to  $\pm 1.0$  °C across the chamber volume. An over-temperature alarm activates when the internal temperature exceeds the programmed threshold, and the LCD display provides a live readout of both temperature and elapsed run time.

### **Electric Heating Humidification System**

Humidity is generated through an electric heating humidification system supplied by a large-capacity internal water tank. An imported humidity sensor continuously monitors relative humidity within the chamber and signals the humidification system to maintain the set-point within the 50–90% RH operating range. Humidity fluctuation is rated at  $\pm 5\%$  RH. This active humidification approach is particularly suited to mould incubation and fungal research, where sustained high-humidity conditions are required over days or weeks without manual refilling intervention.

### **Centrifugal Fan Air Distribution**

A centrifugal fan circulates conditioned, humidified air uniformly throughout the working chamber, ensuring consistent temperature and humidity distribution across all shelf positions. This forced-convection design minimizes gradients between the top and bottom of the chamber, which is especially important for large-volume models (400 L and 800 L) where natural convection alone would produce unacceptable variation across shelf levels.

### **Multi-Segment Programmable Profiles**

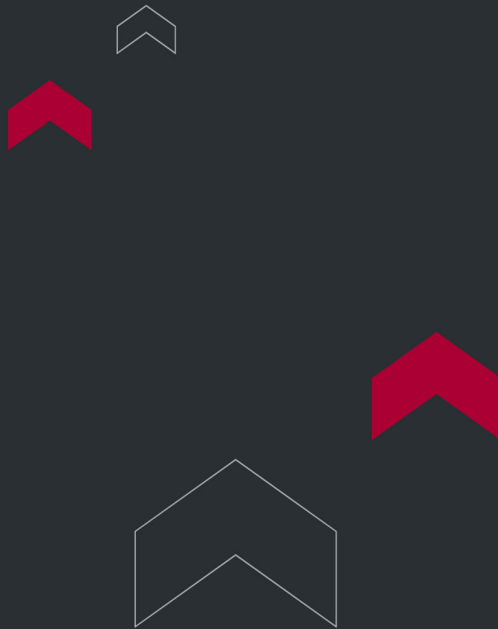
The ToronCubator™ MU-P Series supports up to 30 programmable segments across 99 repeatable cycles, allowing researchers to define complex environmental profiles — including temperature ramps, humidity step changes, and combined ramp-and-soak sequences — without manual intervention. The timer function covers 0–9999 minutes for flexible run duration scheduling. An integrated non-CFC refrigeration system using a well-known international brand compressor provides the cooling capacity for temperatures as low as 4 °C, with stable, low-noise operation throughout the duty cycle.

## **TECHNICAL SPECIFICATIONS**

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## MU-P Technical Specifications

| Parameter                         | ToronCubator™ MU-150P                | ToronCubator™ MU-250P | ToronCubator™ MU-400P | ToronCubator™ MU-800P |
|-----------------------------------|--------------------------------------|-----------------------|-----------------------|-----------------------|
| Chamber Volume                    | 150 L                                | 250 L                 | 400 L                 | 800 L                 |
| Temp. Range (Without Humidifying) | 4-60 °C                              |                       |                       |                       |
| Temp. Range (With Humidifying)    | 10-40 °C                             |                       |                       |                       |
| Temperature Resolution            | 0.1 °C                               |                       |                       |                       |
| Temp. Fluctuation at 25 °C        | ±0.5 °C                              |                       |                       |                       |
| Temp. Uniformity at 25 °C         | ±1.0 °C                              |                       |                       |                       |
| Humidity Range                    | 50-90% RH                            |                       |                       |                       |
| Humidity Fluctuation              | ±5% RH                               |                       |                       |                       |
| Rated Power                       | 1450 W                               | 1500 W                | 1700 W                | 2600 W                |
| Timer Range                       | 0-9999 min                           |                       |                       |                       |
| Internal Dimensions W×D×H         | 510×390×760 mm                       | 510×450×1100 mm       | 600×640×1050 mm       | 1220×585×1123 mm      |
| Housing Dimensions W×D×H          | 650×680×1400 mm                      | 650×740×1726 mm       | 745×930×1695 mm       | 1503×910×1820 mm      |
| Number of Shelves (Standard)      | 3                                    | 4                     | 4                     | 6                     |
| Net Weight / Gross Weight         | 114 / 131 kg                         | 132 / 162 kg          | 162 / 194 kg          | 298 / 354 kg          |
| Package Size W×D×H                | 750×820×1590 mm                      | 750×880×1910 mm       | 890×1120×1880 mm      | 1640×1090×2040 mm     |
| Refrigerant                       | Non-CFC (environmentally compliant)  |                       |                       |                       |
| Voltage                           | 220V / 50Hz (110V is also available) |                       |                       |                       |



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