

DRUG STABILITY TEST CHAMBER



Drug Stability Test Chamber

Pharmaceutical stability testing demands more than just temperature control. It requires precision, traceability, and the confidence that every data point captured over months — sometimes years — of study time is accurate, tamper-proof, and audit-ready. The ToronDST™ series is a family of pharmaceutical-grade drug stability test chambers engineered from the ground up to meet that standard.

Designed for ICH-compliant long-term, intermediate, and accelerated stability studies, every ToronDST™ chamber functions as a fully capable temperature and humidity test chamber — independently controlling both temperature and relative humidity within a mirror-finish stainless steel working space. Refrigeration-based cooling combined with electric resistance heating delivers precise temperature regulation across the full operating range, while an evaporative humidification system maintains relative humidity from as low as 15% RH to as high as 98% RH depending on the model selected.

Two platform tiers address different regulatory and operational requirements. The ToronDST™ A Series is the flagship platform, powered by the BRIGHT II adaptive control system. It delivers tighter temperature performance ($\pm 0.3^{\circ}\text{C}$ fluctuation at 25°C), a 10-year on-board data archive independent of any SD card, and a temperature range without humidification of -10°C to 85°C for smaller models. The ToronDST™ P Series is the programmable value tier, powered by the BRIGHT I control system, offering $\pm 0.5^{\circ}\text{C}$ fluctuation at 25°C , a 5-year on-board data archive, and an additional water shortage alarm — making it the practical choice for CROs, contract manufacturing organizations, and quality-control laboratories running ICH-aligned stability programs without requiring the extended archive depth of the ToronDST™ A Series.

Across both platforms, six capacity options span 150 L to 1,600 L. Single-door models (150 L, 250 L, 400 L) serve dedicated study conditions and smaller laboratories, while side-by-side door models (800 L, 1,000 L, 1,600 L) support high-throughput stability programs and large-scale production validation. Both series share a common feature set: a 30-segment, 99-cycle programmable engine, multi-level user permissions, real-time data and trend curve viewing, manually adjustable circulating air volume, rapid post-door-opening recovery, a glass observation inner door, a built-in mechanical lock, and a built-in printer — the complete operational toolkit for a GMP-compliant drug stability test chamber.

APPLICATIONS

Applications

The ToronDST™ series drug stability test chamber is suited to a broad range of regulated pharmaceutical, biotechnology, and research applications, including:

- **Pharmaceutical Stability Programs:** long-term stability studies conducted at 25°C / 60% RH per ICH Q1A(R2), accelerated stability testing at 40°C / 75% RH, and intermediate stability studies at 30°C / 65% RH are the primary use case for the ToronDST™ family. Both the ToronDST™ A Series and ToronDST™ P Series maintain the temperature and humidity setpoints these conditions require with the data integrity infrastructure that regulatory agencies expect.
- **Photostability Testing:** the LED illumination module built into both series supports photostability studies conducted under ICH Q1B protocols, enabling organizations to complete light-exposure stability assessments within the same platform rather than requiring a separate dedicated chamber.
- **Biopharmaceutical and Vaccine Stability:** biologics, monoclonal antibodies, and vaccines require precise, uninterrupted control of both temperature and humidity over extended storage periods. The on-board data loggers in both series storing 5 or 10 years of timestamped records provide the continuous environmental history that biopharmaceutical stability dossiers demand.
- **Pharmaceutical Packaging and Container-Closure Integrity Testing:** container-closure systems, packaging materials, and primary packaging components must be validated under controlled conditions. The ToronDST™ temperature and humidity test chamber provides the stable, reproducible environment needed for packaging integrity studies.
- **Medical Device Conditioning:** humidity and temperature conditioning of medical devices and device components for shelf-life validation and environmental stress testing.
- **Cosmetics, Nutraceuticals, and Food Science:** shelf-life validation of cosmetic and personal care products, nutraceuticals, dietary supplements, and food science samples under controlled temperature and humidity stress conditions — applications where the ToronDST™ temperature and humidity incubator capability extends well beyond the pharmaceutical sector.

- CRO and CMO Stability Programs: contract research organizations and contract manufacturing organizations running multi-client, multi-protocol stability programs benefit from the P Series' role-based access permissions and traceable USB data export, which segregate client data and protect study integrity across concurrent programs.
- Electronic Component Humidity Conditioning: controlled humidity exposure and temperature cycling for electronic components, PCBs, and materials requiring environmental qualification.

FEATURES

Why Choose ToronDST™ for Your Drug Stability Test Chamber?

Selecting a drug stability test chamber is one of the most consequential procurement decisions a pharmaceutical or biopharmaceutical laboratory makes. The chamber you choose will be entrusted with months or years of irreplaceable stability study data — and its performance, data integrity architecture, and reliability directly affect your regulatory submissions. Here is why the ToronDST™ series stands apart.

- Purpose-built for ICH compliance, not adapted to it: many temperature and humidity test chambers on the market are general-purpose environmental chambers repositioned for stability testing. The ToronDST™ series was designed from the start around the specific temperature, humidity, and data integrity requirements of ICH Q1A(R2), ICH Q1B, and 21 CFR Part 11. The on-board data logger, tamper-evident USB export format, multi-level access permissions, and role-based controls are not optional add-ons — they are built into every unit.
- Two tiers, one standard of data integrity: whether your program calls for the BRIGHT II adaptive control system of the ToronDST™ A Series with its 10-year archive and $\pm 0.3^{\circ}\text{C}$ temperature fluctuation, or the BRIGHT I system of the ToronDST™ P Series with its 5-year archive and dedicated water shortage alarm, both platforms export data in a locked, non-modifiable file format. Your audit trail is protected regardless of which tier you select.
- A temperature and humidity incubator that grows with your program: with six capacity options spanning 150 L to 1,600 L across both series, the ToronDST™ family scales from a compact single-door bench-side temperature and humidity incubator for early-phase research to a 1,600 L side-by-side floor unit capable of running large-scale production stability

batches — all on the same control platform and with the same operating workflow.

- Adaptive control that compensates for your lab, not the other way around: both the BRIGHT I and BRIGHT II control systems continuously monitor ambient laboratory conditions and automatically adjust their PID parameters to maintain setpoint accuracy as your HVAC fluctuates, seasons change, or lab occupancy varies. This means your temperature and humidity test chamber delivers consistent performance year-round without requiring manual recalibration events that create gaps in your study records.
- Comprehensive protection, not basic alarming: the ToronDST™ A Series provides six independent protection layers; the ToronDST™ P Series adds a seventh — water shortage detection — for a total of seven. From dual over-temperature limits and compressor protection to door-open detection and leakage protection, the ToronDST™ series protects your samples, your equipment, and your study data against every foreseeable failure mode.
- Visibility without disruption. The glass observation inner door lets you inspect chamber contents and shelf loading at any time without opening the outer door and triggering a recovery cycle. Real-time temperature and humidity trend curves are visible on the touchscreen without pausing the running program. The built-in printer delivers an immediate hard-copy record on demand. Every design decision prioritizes uninterrupted, observable stability study execution.
- Regulatory confidence from day one. The ToronDST™ series is designed in alignment with ICH Q1A(R2), ICH Q1B, 21 CFR Part 11, USP (1150), IEC 61010-1, ISO 9001, and CE Marking requirements. For organizations preparing IND, NDA, ANDA, or BLA submissions — or managing ongoing GMP compliance for commercial products — the ToronDST™ drug stability test chamber provides the documented, traceable environmental control record that regulatory reviewers expect.

All specifications subject to change without notice. Contact your regional sales representative for the most current product documentation, qualification protocols, and compliance support resources.

TECHNICAL SPECIFICATIONS

Product Comparison

Parameter	ToronDST™ A Series	ToronDST™ P Series
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Volume (L)	150 - 1600	150 - 1600
Control System	BRIGHT II	BRIGHT I
Data Archive	10+ years	5+ years
Temp. Fluctuation at 25°C (°C)	±0.3	±0.5
Temp. Uniformity at 25°C (°C)	±0.8 - ±1	±1 - ±1.5
Temp. Range without Humidification (°C)	-10 ~ 85	0 ~ 70
Temp. Range with Humidification (°C)	10 - 60	
Humidity Range (% RH)	15 - 98	25 - 95
Humidity Fluctuation (% RH)	±2 - ±3	±3 - ±5
Water Shortage Alarm	—	Yes
Protection Layers	6	7
Rated Power (W)	1,900 - 3,300	1,900 - 3,700
Voltage	220V ±10V, 50/60 Hz (110V is also available)	
Ambient Temperature (°C)	10 - 30	
Temp. Resolution (°C)	0.1	
Timer Range per Segment (h)	1 - 9,999	
Door Type	Single and Side-by-side	



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