

INTELLIGENT PROGRAMMABLE INCUBATOR SHAKER



Intelligent Programmable Incubator Shaker - ToronShake™ IS-I

ToronShake™ IS-I is an intelligent, fully programmable laboratory shaker incubator built for B2B research environments that demand precision, traceability, and contamination control alongside orbital agitation and temperature regulation. Available in two models (55 L and 75 L) this shaker incubator combines a BRIGHT I intelligent control system, a full-color touch screen, 30-segment/99-cycle programmable profiles, Gregorian calendar scheduling, 150,000-record USB data storage, UV germicidal sterilization, and frost-free intelligent operation. For life science, pharmaceutical, and regulated research laboratories that require a laboratory shaker incubator capable of documenting every run and operating unattended over extended periods, the ToronShake™ IS-I is the highest-capability instrument in the ToronShake™ lineup.

General Description

ToronShake™ IS-I (BXYC-T Series) is a premium intelligent shaker incubator designed for advanced microbial culture, biochemical assay, and cell biology workflows that require more than basic agitation and temperature control. Two models ToronShake™ IS-255I (55 L, side-pull door) and ToronShake™ IS-275I (75 L, upswing door) offer different access configurations to suit varying laboratory space and workflow preferences, while sharing the same core intelligent control platform and feature set.

The BRIGHT I intelligent control system automatically compensates control parameter values in response to real-time environmental changes, maintaining set-point accuracy without manual recalibration when ambient conditions fluctuate. The touch full-color operation screen allows users to independently configure temperature, time, speed, operating mode, cycle count, number of segments, and other shaker incubator parameters with live Gregorian calendar time and real-time parameter display always visible on screen. A Gregorian calendar appointment function enables the instrument to start automatically at a programmed date and time, allowing researchers to schedule overnight or weekend shaker incubation runs without physical presence at the instrument.

The 150,000-record large-capacity USB storage system retains operational data in exportable format for audit trail, compliance documentation, and long-term data management a significant step up from the ToronShake™ IS. The control

system logs all alarm events with exact timestamps for backtracking and post-run review. A screen lock, screen saver, and password unlock function prevent unauthorized parameter changes during active incubation shaker runs, making the IPX appropriate for multi-user regulated laboratory environments.

The inner cavity is fully stainless steel with a large R-angle, dead-corner-free waterproof design and an internal flow guide trough supporting internal water cleaning and flushing while preventing bacteria-contaminated liquid from affecting subsequent experiments when spills occur during oscillation. The outer shell uses high-temperature electrostatic spray coating for a clean, durable surface. Double-layer tempered glass provides a bright, clear observation window that is easy to clean and can be viewed without opening the chamber. Overall foam insulation material provides uniform thermal insulation with flame-retardant properties.

How the IPX Compares to the ToronShake™ IS-D

Feature	ToronShake™ IS-D	ToronShake™ IS-I
Display	LCD display	Touch full-color screen
Control System	PMMA II	BRIGHT I intelligent control
Programmable Profiles	No programmable profiles	30-segment / 99-cycle profiles
Data Logging	No data logging	150,000-record USB logging
Sterilization	No UV sterilization	UV sterilization
Timing & Scheduling	0-999 min/h timer (No calendar scheduling)	Gregorian calendar scheduling
Maximum Capacity	Up to 70 L	Up to 75 L
Operation & Hardware	Parameter encryption Power-off recovery	Frost-free operation Slow-start motor R-angle waterproof interior

APPLICATIONS

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Applications

The ToronShake™ IS-I is suited to demanding B2B laboratory and regulated research environments where a standard lab shaker incubator is insufficient. Its intelligent control, data logging, and sterilization capability expand its application range beyond routine culture work.

- Advanced Microbial Culture: long-duration aerobic bacterial, yeast, and fungal culture requiring calendar-scheduled starts, UV sterilization between runs, and data-logged temperature and speed records.
- Regulated Pharmaceutical Research: GLP- and GMP-adjacent cell-based assay development and biological compound screening where 150,000-record USB export provides audit-ready run documentation.
- Cell Biology & Expression Studies: protein expression, enzyme production, and recombinant culture in flasks requiring gentle slow-start agitation to protect shear-sensitive cells and prevent liquid spatter.
- Biochemical Assays: multi-phase enzyme kinetics and substrate reaction studies using programmable 30-segment profiles to define precise temperature and agitation sequences without operator intervention.
- Environmental & Food Testing: BOD incubation with orbital agitation, fermentation studies, and microbiological quality control where reproducible, calendar-scheduled runs reduce manual setup time.
- Unattended & Overnight Protocols: multi-day or scheduled laboratory shaker incubator runs using the Gregorian calendar appointment function and power-off recovery to operate reliably without continuous supervision.





FEATURES

Intelligent Programmable Incubator Shaker - ToronShake™ IS-I Key Features

Intelligent Control System

- BRIGHT I intelligent control system with automatic environmental compensation of control parameters for consistent set-point accuracy
- Touch full-color operation screen for independent control of temperature, time, speed, mode, cycle, and segment parameters with real-time display
- Programmable design: supports 5 independent programs each with up to 30 segments and 99 repeatable cycles for complex multi-phase protocols
- Two timing modes: running timing from start or constant temperature timing from set-point arrival selectable per protocol requirement
- Gregorian calendar appointment function for scheduled automatic start at a defined date and time without operator attendance
- Screen lock, screen saver, and password unlock to prevent unauthorized parameter changes during active shaker incubation runs

Data Management and Alarms

- 150,000-record large-capacity USB storage system with U-disk data export for audit trail, compliance documentation, and data management

- Support curve data view, real-time curve visualization, and historical curve access with time-jump search for fast data retrieval
- Control system logs all alarm events with exact timestamps for post-run review and backtracking
- Comprehensive alarm coverage: door-stop alarm, power recovery alarm, fault self-diagnosis, door delay alarm, and temperature abnormality alarm

Motor and Refrigeration

- High-quality brushless DC motor with intelligent slow-start and slow-stop functions to protect motor and prevent liquid spatter from rapid acceleration
- Imported compressor unit with noise reduction of more than 50% for quieter operation in open-plan laboratory environments
- Intelligent frost-free operation with user-adjustable defrost temperature, interval, and duration compressor delayed start extends service life
- Verification hole (30 mm inner diameter) on the left side of the ToronShake™ IS-275I for sensor wiring during measurement or calibration procedures

Chamber and Construction

- ToronShake™ IS-275I: upswing door design saves bench space and improves chamber access; ToronShake™ IS-255I: side-pull door with multilateral magnetic sealing for secure closure
- All-stainless steel inner cavity with large R-angle dead-corner-free waterproof design and internal flow guide trough for easy cleaning and spill management
- Double-layer tempered glass observation window bright, clean, and easy to maintain with direct interior visibility without opening the chamber
- High-temperature electrostatic spray outer shell for a clean, durable exterior finish with low maintenance requirements
- Overall foam insulation material for uniform thermal insulation and flame-retardant properties throughout the cabinet structure
- Standard integrated plastic flask fixture with high strength and consistent positioning across all supported vessel sizes

Sterilization and Safety

- Internal standard lighting and UV germicidal lamp with programmable timed sterilization function for decontamination between sequential culture runs
- Power-off recovery function automatically restores all operating parameters and resumes the active program when power is reinstated

THEORY & METHOD

Theory and Method

BRIGHT I Intelligent Environmental Compensation

The BRIGHT I control platform monitors real-time ambient conditions and automatically adjusts control parameters temperature, speed, and timing to compensate for environmental fluctuations without operator intervention. This adaptive approach maintains set-point accuracy when laboratory HVAC cycling, seasonal temperature shifts, or compressor load changes would otherwise introduce drift into long-duration shaker incubator runs. All compensation events and operational parameters are timestamped and stored within the 150,000-record data system, providing a complete, searchable run history accessible via USB export.

30-Segment / 99-Cycle Programmable Profiles

The IPX supports up to 5 independent programs, each with up to 30 configurable segments and 99 repeatable cycles. Each segment can define a target temperature, agitation speed, duration, and transition behavior enabling complex multi-phase thermal and agitation profiles to run automatically from start to finish. Two timing options are available: running timing (elapsed time from start) and constant temperature timing (time counted only after the set temperature is reached), giving researchers flexibility in how incubation duration is measured for their specific protocols. This level of programmability is not available on the ToronShake™ IS platform.

Intelligent Frost-Free Operation

The refrigeration system operates with intelligent frost-free control the compressor delayed start, adjustable defrost temperature, defrost interval, and defrost duration are all configurable by the user. This prevents ice buildup on refrigeration components during sustained low-temperature operation, extending compressor service life and maintaining consistent cooling performance over long-duration refrigerated shaker incubation runs. The imported compressor unit reduces noise levels by more than 50% compared to conventional compressor designs, making the IPX suitable for open-plan laboratory environments where acoustic output from shared instruments affects working conditions.

Brushless DC Motor with Slow-Start Protection

The high-quality brushless DC motor uses a motor slow-start function that gradually ramps oscillation speed from zero to the set-point rather than engaging at full speed immediately. This protects the motor from start-up torque stress while simultaneously preventing the sudden acceleration spatter that can cause liquid in shake flasks to contact the cap or stopper a meaningful contamination risk in microbial and cell culture shaker incubation. The slow-stop function applies the same gradual deceleration on shutdown, further protecting fragile biological samples from mechanical shock during the end of each run cycle.

UV Sterilization and Standard Lighting

The inner chamber is fitted with both standard interior lighting for sample observation and a UV germicidal lamp for timed sterilization between runs. The UV sterilization function supports programmable timing, allowing decontamination cycles to run automatically before or after incubation protocols without manual intervention. This is particularly relevant for laboratory shaker incubator applications involving pathogens, fungal cultures, or any biological work where cross-contamination between sequential runs is a concern. The double-layer tempered glass door provides clear visibility into the illuminated chamber without requiring the door to be opened.

R-Angle Waterproof Stainless Steel Interior

The inner cavity uses an all-stainless steel large R-angle design all internal corners are curved rather than square, eliminating the recessed dead corners where biological material accumulates and resists cleaning. An internal flow guide through channels spilled liquid toward a drainage path, supporting internal water cleaning and flushing without disassembly.

This design prevents bacteria-contaminated liquid from spreading across the chamber base during oscillation events, reducing the risk of cross-contamination between sequential culture runs. The standard integrated plastic flask fixture is high-strength and consistent across all vessel configurations.

TECHNICAL SPECIFICATIONS

Intelligent Programmable Incubator Shaker - ToronShake™ IS-I Technical Specifications

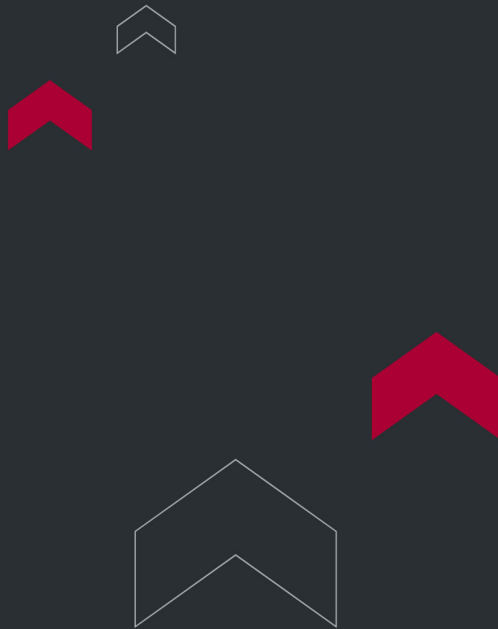
Parameter	ToronShake™ IS-255I	ToronShake™ IS-275I
Chamber Volume	55 L	75 L
Door Style	Side-pull door, multilateral magnetic sealing	Upswing door
Temperature Range at 25 °C	4-60 °C	
Temperature Resolution	0.1 °C	
Temp. Fluctuation at 37 °C	±0.5 °C	
Temp. Uniformity at 37 °C	±1.0 °C	
Rotation Rate	0-300 rpm	
Rotation Accuracy	±1 rpm	
Vibration Amplitude	Φ26 mm	
Timer Range	0-999.9 h	
Programmable Profiles	5 programs × 30 segments × 99 cycles	

Parameter	ToronShake™ IS-255I	ToronShake™ IS-275I
Data Storage	150,000 records (USB export)	
Control System	BRIGHT I intelligent, auto environmental compensation	
Display	Touch full-color operation screen	
Driving Motor	High-quality brushless DC motor, slow-start / slow-stop	
Sterilization	UV germicidal lamp (programmable timed sterilization)	
Frost-Free Operation	Intelligent, adjustable defrost temperature / interval / duration	
Compressor	Imported, >50% noise reduction vs. standard	
Inner Cavity	All stainless steel, large R-angle waterproof, internal flow guide trough	
Observation Window	Double-layer tempered glass	
Tray Size W×D	440×320 mm	525×425 mm
Housing Dimensions W×D×H	595×620×620 mm	880×720×500 mm
Voltage	AC 220V ±22V, 50Hz (110V is also available)	
Rated Power	600 W	800 W
Verification Hole	Not specified	Ø30 mm (left side, for sensor wiring)
Power-Off Recovery	Yes automatic program resume on power reinstatement	
Alarm System	Door-stop, power recovery, fault self-diagnosis, door delay, temperature abnormality	

Flask Configuration Reference

Both models support a range of standard flask sizes. The table below shows the full-load configuration capacity for each model.

Model	Tray Size W×D (mm)	Full Load Configuration (mL × pcs)
ToronShake™ IS-255I	440×320 mm	250×12 / 500×8 / 1000×6
ToronShake™ IS-275I	525×425 mm	250×50 / 500×16 / 1000×12



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