

AIR BATH ORBITAL SHAKER



Air Bath Orbital Shaker — ToronShake™ AB-S Series

Heated Air Bath Shaking for Versatile Laboratory Incubation and Agitation

ToronShake™ AB-S Series is a heated air bath shaker designed for laboratory applications requiring controlled-temperature orbital or reciprocating agitation in a compact, energy-efficient benchtop platform. Spanning two sub-series — the ToronShake™ AB-92S and the ToronShake™ AB-98S — this lab shaker incubator lineup covers orbital, dual-mode, and reciprocating-only shaking configurations across temperature ranges of RT+5 to 50 °C (ToronShake™ AB-92S) and RT+5 to 65 °C (ToronShake™ AB-98S), with the ToronShake™ AB-98S adding built-in chamber illumination as its defining operational feature for light-assisted or sample-observation protocols.

The air bath heating principle distinguishes the ToronShake™ AB-S Series from the water bath shaker incubator configurations in the ToronShake™ lineup. Rather than heating through an aqueous medium, the ToronShake™ AB-S circulates heated air within the working chamber — providing a dry, open thermal environment suited to protocols using sealed culture vessels, dry incubation conditions, or sample types that cannot be exposed to water contact or high-humidity conditions. The lower power consumption of the air bath platform (300–400 W versus 1,600 W for the water bath series) reflects the reduced heating load of a dry chamber, making the AB-S an energy-efficient laboratory shaker incubator choice for routine incubation workflows operating at or near ambient temperatures.

All models across both sub-series share microcomputer temperature and frequency control, LCD display interface, stainless steel chamber construction, universal spring fixture, power recovery and parameter memory function, and 0–9,999 min/h timer capability. The ToronShake™ AB-92S and ToronShake™ AB-98S differ in temperature ceiling, power rating, and the presence of the built-in lamp on the ToronShake™ AB-98S — with both sub-series available in orbital (A), dual orbital/reciprocating (B), and reciprocating-only (C) oscillation mode configurations.

Model Selection Guide

If your protocol requires...	Choose...
Dry air bath, up to 50 °C, orbital agitation only	ToronShake™ AB-92SA

If your protocol requires...	Choose...
Dry air bath, up to 50 °C, both orbital and reciprocating modes	ToronShake™ AB-92SB
Dry air bath, up to 50 °C, reciprocating agitation only	ToronShake™ AB-92SC
Dry air bath, up to 65 °C, orbital agitation with built-in chamber illumination	ToronShake™ AB-98SA
Dry air bath, up to 65 °C, dual orbital and reciprocating modes with built-in illumination	ToronShake™ AB-98SB
Dry air bath, up to 65 °C, reciprocating agitation with built-in chamber illumination	ToronShake™ AB-98SC

APPLICATIONS

Air Bath Orbital Shaker — ToronShake™ AB-S Series Applications

The ToronShake™ AB-S Series air bath shaker incubator is suited to laboratory applications where controlled-temperature dry air heating combined with orbital or reciprocating agitation is the protocol requirement.

- **Microbiology & Bacterial Culture:** Bacterial culture incubation, yeast propagation, and microorganism growth studies in sealed or capped culture vessels requiring stable temperature control combined with consistent orbital agitation for dissolved oxygen transfer and nutrient distribution. The dry air bath environment of this lab shaker incubator is well suited to sealed flask culture formats where water bath contact is not practical or required.
- **Biochemical Assays & Enzyme Research:** Enzyme kinetics assays, substrate-enzyme reaction incubation, protein studies, and temperature-sensitive biochemical protocols requiring defined agitation intensity at controlled temperatures. The ToronShake™ AB-92S and ToronShake™ AB-98S configurations of this shaker incubator cover the temperature ranges most commonly required for standard biochemical assay conditions.
- **Hybridization & Molecular Biology:** Nucleic acid hybridization, blotting protocols, restriction enzyme digestion, ligation reactions, and molecular biology incubation workflows requiring precise temperature control and gentle-to-moderate orbital or reciprocating agitation across defined incubation durations.

- Cell Biology & Tissue Research: Cell viability studies, tissue digestion support, receptor binding assays, and general cell biology incubation protocols requiring stable physiological temperatures combined with gentle orbital agitation — supported by the ToronShake™ AB-92SA and ToronShake™ AB-98SA orbital mode configurations of this laboratory shaker incubator series.
- Illuminated Protocols (ToronShake™ AB-98S): Light-dependent enzyme assays, photosynthesis research support, bioluminescence studies, algae culture, and any incubation protocol where defined chamber illumination alongside temperature and agitation control is a protocol requirement — served by the built-in lamp of the AB-98S sub-series, which distinguishes it from the non-illuminated AB-92S within this shaker incubator lineup.
- Pharmaceutical Research & QC: Biological sample conditioning, solubility screening, dissolution testing support, and in-process quality control incubation at defined temperatures and agitation rates. The power recovery and parameter memory function of this lab shaker incubator protects active protocol runs from power interruption events in pharmaceutical laboratory environments.
- Food Science & Safety: Microbiological shelf-life testing, fermentation trials, spoilage organism incubation, and food safety microbiological testing requiring reproducible combined air bath heating and agitation conditions over defined incubation periods.
- Educational & General Laboratory Use: General-purpose heated agitation for academic teaching laboratories, multi-user shared facilities, and routine research workflows requiring a dependable, easy-to-operate incubator shaker at an accessible and energy-efficient platform — where the ToronShake™ AB-S air bath design provides a practical alternative to the higher-power water bath shaker incubator for standard incubation protocols.



FEATURES

Air Bath Orbital Shaker — ToronShake™ AB-S Series Key Features

Air Bath Heating

- Dry air bath heating environment suited to sealed culture vessels, sample types incompatible with water contact, and protocols where a dry incubation chamber is preferred or required
- ToronShake™ AB-92S temperature range: RT+5 to 50 °C; AB-98S temperature range: RT+5 to 65 °C — the wider ToronShake™ AB-98S ceiling accommodating elevated-temperature biochemical and microbiological incubation protocols
- Energy-efficient platform: 300 W (ToronShake™ AB-98S) and 400 W (ToronShake™ AB-92S) versus 1,600 W for the equivalent water bath shaker incubator configurations

Built-In Chamber Illumination (ToronShake™ AB-98S Sub-Series Only)

- Standard built-in lamp providing defined internal chamber illumination alongside temperature and agitation control — the defining feature that distinguishes the AB-98S from the ToronShake™ AB-92S within this air bath shaker incubator series
- Supports light-dependent protocols including photosynthesis research, algae culture, bioluminescence assays, and sample observation during active incubation without external lighting equipment

Six Model Configurations — Oscillation Mode Selection

- ToronShake™ AB-92SA: Air bath, RT+5–50 °C, orbital only — 0–220 rpm, 20 mm amplitude
- ToronShake™ AB-92SB: Air bath, RT+5–50 °C, dual orbital and reciprocating — orbital 0–220 rpm / 20 mm; reciprocating 0–300 rpm / 30 mm
- ToronShake™ AB-92SC: Air bath, RT+5–50 °C, reciprocating only — 0–300 rpm, 30 mm amplitude
- ToronShake™ AB-98SA: Air bath, RT+5–65 °C, orbital only with lamp — 40–300 rpm, 20 mm amplitude

- ToronShake™ AB-98SB: Air bath, RT+5–65 °C, dual orbital and reciprocating with lamp — 40–300 rpm, 20 mm (orbital) / 30 mm (reciprocating)
- ToronShake™ AB-98SC: Air bath, RT+5–65 °C, reciprocating only with lamp — 40–300 rpm, 30 mm amplitude

Control System

- Microcomputer temperature and frequency controller with LCD display for straightforward temperature setpoint and agitation speed management
- Integrated timer function supporting 0–9,999 min/h for precise, unattended incubation cycle scheduling
- Power recovery and parameter memory function automatically restores all programmed settings following any power interruption — protecting active shaker incubator runs from data loss

Chamber & Physical Design

- Stainless steel working chamber for corrosion resistance and easy cleaning
- Universal spring fixture accommodating a wide range of flask and vessel sizes
- Compact benchtop footprint suitable for standard laboratory bench installations across both ToronShake™ AB-92S and ToronShake™ AB-98S sub-series

THEORY & METHOD

Theory and Method

Air Bath Heating Principle The ToronShake™ AB-S Series operates on an air bath heating principle in which electric resistance heating elements warm the air within the sealed working chamber to the programmed setpoint temperature. The heated air circulates around culture vessels placed on the spring-fixture tray platform, delivering controlled thermal conditions through convective heat transfer. Unlike the water bath shaker incubator format, the air bath provides a dry thermal environment — particularly well suited to sealed or capped culture vessels, sample types incompatible with water

contact, and protocols where the lower thermal mass of air is acceptable for the temperature stability requirements of the workflow.

The air bath platform operates at significantly lower power consumption (300–400 W) than the water bath equivalent, reflecting the reduced heating load of a dry chamber and making the AB-S an energy-efficient incubator shaker choice for laboratories running continuous or long-duration incubation protocols at or near physiological temperatures.

Orbital Shaking Mode (ToronShake™ AB-92SA, ToronShake™ AB-92SB, ToronShake™ AB-98SA, ToronShake™ AB-98SB) In orbital mode, the tray platform moves in a circular, fixed-radius orbit of 20 mm diameter at speeds of 0–220 rpm (ToronShake™ AB-92SA and ToronShake™ AB-92SB) or 40–300 rpm (ToronShake™ AB-98SA and ToronShake™ AB-98SB). This motion generates consistent rotational fluid movement within culture vessels — promoting dissolved oxygen transfer, nutrient distribution, and homogeneous mixing across all vessel positions simultaneously. The wider speed range of the AB-98S orbital models (40–300 rpm versus 0–220 rpm on the ToronShake™ AB-92S) provides greater agitation intensity flexibility for protocols requiring higher shaking speeds.

Reciprocating Shaking Mode (ToronShake™ AB-92SC, ToronShake™ AB-92SB, ToronShake™ AB-98SC, ToronShake™ AB-98SB) In reciprocating mode, the tray platform moves back and forth in a linear oscillation pattern with a 30 mm stroke amplitude at speeds of 0–300 rpm (ToronShake™ AB-92SB and ToronShake™ AB-92SC) or 40–300 rpm (ToronShake™ AB-98SB and ToronShake™ AB-98SC). Reciprocating agitation generates directional fluid flow within culture vessels — producing higher fluid velocity along vessel walls and more vigorous mixing per unit speed than orbital motion at the same rpm, making the reciprocating configurations of this lab shaker incubator well suited to protocols requiring more aggressive agitation or directional flow-dependent mixing patterns.

Dual-Mode Operation (ToronShake™ AB-92SB, ToronShake™ AB-98SB) The ToronShake™ AB-92SB and ToronShake™ AB-98SB configurations provide both orbital and reciprocating oscillation modes selectable by the operator — making them the most versatile models in their respective sub-series. A single AB-92SB or AB-98SB can serve both gentle orbital culture protocols and more vigorous reciprocating agitation workflows without requiring a separate laboratory shaker incubator for each mode.

Built-In Chamber Illumination (ToronShake™ AB-98S Sub-Series) The ToronShake™ AB-98S sub-series adds a built-in lamp as standard — providing defined internal chamber illumination alongside temperature and agitation control. This integrated illumination capability supports light-dependent incubation protocols, including photosynthesis research, algae culture, light-activated assays, and general sample observation during active incubation, without requiring external lighting equipment or the addition of a separate illuminated incubator shaker platform.

Microcomputer Temperature and Frequency Control Temperature and agitation frequency are governed by a microcomputer controller with LCD display interface. The controller maintains the programmed temperature setpoint across the full operating range, with power recovery and parameter memory functionality that automatically restores all programmed settings — temperature setpoint, agitation speed, and timer — following any power interruption, protecting active incubation runs from data loss and parameter reset. The integrated timer function supports run durations from 0 to 9,999 minutes or hours for precise, unattended incubation cycle management.

TECHNICAL SPECIFICATIONS

Air Bath Orbital Shaker — ToronShake™ AB-S Series Technical Specifications

ToronShake™ AB-92S Sub-Series — Air Bath, RT+5 to 50 °C, No Lamp

Parameter	ToronShake™ AB-92SA	ToronShake™ AB-92SB	ToronShake™ AB-92SC
Type	Air Bath		
Built-In Lamp	No		
Temperature Range (°F / °C)	RT+9 to 122 °F (RT+5 to 50 °C)		
Oscillation Mode	Orbital	Orbital or Reciprocating	Reciprocating

Parameter	ToronShake™ AB-92SA	ToronShake™ AB-92SB	ToronShake™ AB-92SC
Rotation Rate — Orbital (rpm)	0-220	0-220	—
Rotation Rate — Reciprocating (rpm)	—	0-300	0-300
Vibration Amplitude — Orbital (in / mm)	0.79 in (20 mm)	0.79 in (20 mm)	—
Vibration Amplitude — Reciprocating (in / mm)	—	1.18 in (30 mm)	1.18 in (30 mm)
Rated Power (W)	400		
Timer Range (min/h)	0-9,999		
Internal Dimensions W×D×H (in)	19.7×15.7×9.8		
Housing Dimensions W×D×H (in)	27.8×17.9×17.3		
Tray Size W×D×H (in)	16.9×13.4×9.1		
Full Load Configuration (mL×flasks)	500×6 or 1000×2		
Net Weight / Gross Weight (lb)	88 / 121	99 / 132	88 / 121
Package Size (in)	31.9×22.0×22.8	31.9×22.0×22.8	31.9×22.0×22.8
Voltage	220V, 50 Hz (110V is also available)		

ToronShake™ AB-98S Sub-Series — Air Bath, RT+5 to 65 °C, Built-In Lamp

Parameter	ToronShake™ AB-98SA	ToronShake™ AB-98SB	ToronShake™ AB-98SC
Type	Air Bath		
Built-In Lamp	Yes		
Temperature Range (°F / °C)	RT+9 to 149 °F (RT+5 to 65 °C)		
Oscillation Mode	Orbital	Orbital or Reciprocating	Reciprocating

Parameter	ToronShake™ AB-98SA	ToronShake™ AB-98SB	ToronShake™ AB-98SC
Rotation Rate — Orbital (rpm)	40-300	40-300	—
Rotation Rate — Reciprocating (rpm)	—	40-300	40-300
Vibration Amplitude — Orbital (in / mm)	0.79 in (20 mm)	0.79 in (20 mm)	—
Vibration Amplitude — Reciprocating (in / mm)	—	1.18 in (30 mm)	1.18 in (30 mm)
Rated Power (W)	300		
Timer Range (min/h)	0-9,999		
Internal Dimensions W×D×H	Not specified		
Housing Dimensions W×D×H (in)	29.1×18.9×19.7	29.1×18.9×19.7	29.1×18.9×19.7
Tray Size W×D×H (in)	16.9×13.4×12.6	16.9×13.4×12.6	16.9×13.4×12.6
Full Load Configuration (mL×flasks)	500×6 or 1000×2	500×6 or 1000×2	500×6 or 1000×2
Net Weight / Gross Weight (lb)	97 / 132	119 / 174	97 / 132
Package Size (in)	31.5×22.0×20.9	33.9×23.6×28.7	31.5×22.0×20.9
Voltage	220V, 50 Hz (110V is also available)		

All dimensions converted from mm to inches. Net and gross weights converted from kg to lb. Full load configuration format: flask volume (mL) × number of flasks. Internal dimensions not specified by supplier for ToronShake™ AB-98S sub-series.



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