LORDERAN

TECHNICAL DATASHEET
DS-300D-310A-EN · REV. B · NOV 2026

LABORATORY SHAKER

# Benchtop Open-Air Orbital Shaker

Quiet, stable orbital shaking for continuous runs — **30–300 rpm**, a **50 mm** orbit on the 300D or **25 mm** on the 310A.

MODELS 300D 310A






310A

| | | | |
|---|---|---|---|
| **30–300** rpm<br>SPEED RANGE | **±1** rpm<br>ROTARY ACCURACY | **50 · 25** mm<br>ORBIT, 300D · 310A | **35 × 250** ml<br>MAX FLASKS, 300D |
| **5000** ml<br>LARGEST FLASK, 310A | **8**<br>PROGRAM SEGMENTS | **999** h<br>TIMER OR CONTINUOUS | **110 / 220** V<br>SUPPLY OPTIONS |

**01 Single-shaft balanced drive**
Low noise and vibration for long, unattended runs.

**02 Soft start**
Gradual acceleration protects samples from splashing.

**03 Power-failure recovery**
Resumes the previous settings when power returns.

APPLICATIONS
Cell culture · Microbiology · Solubility & extraction · Teaching labs

**Warranty**
Major defects: full refund or replacement.

**Free DDP shipping**
Duties paid, no surprise import charges.

**30-day returns**
Most new, unopened items.

PRODUCT OVERVIEW

# A steady orbit, every revolution

A benchtop open-air orbital shaker with a single-shaft balanced drive that stays quiet and stable through continuous runs: 30 to 300 rpm, a **50 mm** orbit on the 300D for vigorous mixing or **25 mm** on the 310A for gentler motion.

Open-air shakers use natural convection, so they run in a temperature-controlled room or warm room. Eight-segment programs, soft start and parameter memory make long runs repeatable.

## HOW IT WORKS

**01 Balanced drive**
Single-shaft balancing device turns the plate on a precise circle.

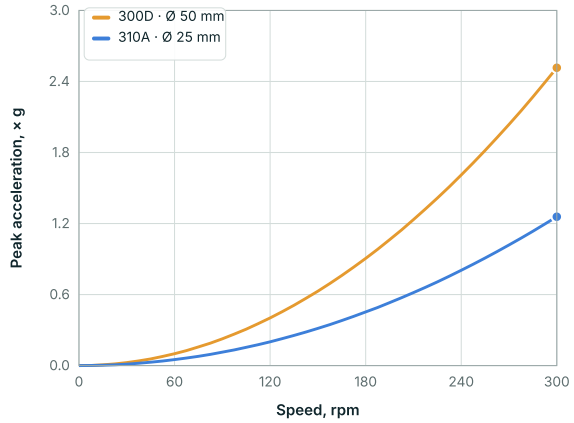
**02 Inverter motor**
Maintenance-free and energy-saving; ±1 rpm rotary accuracy.

**03 Controller**
PID microcomputer, backlit LCD, eight user-programmed segments.

**04 Timer**
0–999 h 59 min, or continuous running.

**05 Protection**
Over-speed sound and light alarm, watchdog timer, leakage and surge protection.

**Two orbits.** At the same speed the 50 mm orbit gives twice the acceleration of the 25 mm orbit.




SPEED
**30–300 rpm**
±1 rpm rotary accuracy

ORBIT
**50 / 25 mm**
300D / 310A

PLATE
**680 × 500 mm**
300D · 550 × 400 mm 310A

WEIGHT
**108 / 50 kg**
300D / 310A

MIXING INTENSITY

$$a / g = 1.118 \times 10^{-6} \times r \times n^2$$

r = orbit radius in mm (half the orbit diameter) · n = speed in rpm. The same relation as centrifugal force: a larger orbit mixes harder at the same speed.

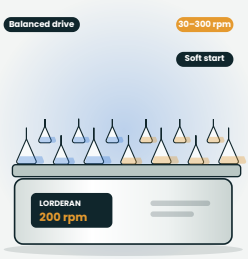
**Quote orbit and speed together**
Mixing depends on both. A 50 mm orbit at 150 rpm is not the same as 25 mm at 150 rpm.

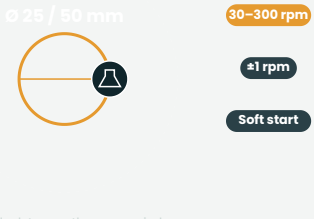
**Keep fill volumes low**
Oxygen transfer falls as fill rises. For aerobic cultures, fill flasks to 10–25 % of nominal volume.

**Balance the platform**
Spread flasks evenly over the plate. A balanced load runs quieter and protects the drive.

FEATURES

# Quiet, stable and safe




## 01 Drive

- **Single-shaft balanced drive** — low noise and vibration
- **Inverter motor** — maintenance-free and energy-saving
- **Cast and ductile iron** key components for stability
- **Soft start** protects samples from splashing

## 02 Control

- PID microcomputer with backlit LCD
- **Eight segments** of user-programmed programs
- Timer 0–999 h 59 min, or continuous
- Parameter encryption and lock
- Running parameter memory

## 03 Protection

- Independent **over-speed** sound and light alarm
- **Power-failure recovery** with previous settings
- Independent leakage and surge protection with watchdog timer

## 04 Capacity

- 300D: 250 ml × 35 · 500 ml × 24 · 1000 ml × 15 · 2000 ml × 9
- 310A: 250 ml × 25 · 500 ml × 15 · 1000 ml × 6 · 2000 ml × 5 · 5000 ml × 3

TECHNICAL SPECIFICATIONS

# Technical specifications

| Parameter | 300D | 310A |
|---|---|---|
| **CONTROL** | | |
| Control Mode | PID (Microcomputer scans the micro-processing chip) | |
| Display Mode | LCD display | |
| Program Control | Eight segments of user-programmed programs | |
| Safety Function | Automatic run, automatic stop, timing run, clock display, calls recovery, parameters memory | |
| Additional Function | Watchdog timer, independent excess speed sound/light alarm, independent electric leakage, leakage/surge protection device | |
| **SHAKING** | | |
| Circulation Mode | Natural convection type | |
| Shaking Mode | Orbital | |
| Drive Mode | Balancing device with single shaft | |
| Speed Range | 30~300rpm | 30-300rpm |
| Rotary Accuracy | ±1rpm | |
| Orbit | Dia. 50mm | Dia. 25mm |
| Timing Range | 0 – 999h59mins/continuous | |
| Size of Shaking Plate | 680*500mm | 550*400mm |
| Flask Clamp | 250ml*35 or 500ml*24 or 1000ml*15 or 2000ml*9 | 250ml*25 or 500ml*15 or 1000ml*6 or 2000ml*5 or 5000ml*3 |
| **SIZE, WEIGHT AND POWER** | | |
| Environmental Requirements | User-specific thermostatic indoor or environment | |
| External size | 680×615×240 mm | 550×480×220mm |
| Net Weight | 108kg | 50kg |
| Power Supply | AC220V±10%; 50/60Hz; 110V±10%, 60Hz (Optinoal) | |

Specifications from the LORDERAN product documentation. Subject to change without notice for product improvement.

AT A GLANCE

MODEL
**300D**

Orbit · plate
Ø 50 mm · 680 × 500 mm

External size
680 × 615 × 240 mm

Net weight
108 kg

MODEL
**310A**

Orbit · plate
Ø 25 mm · 550 × 400 mm

External size
550 × 480 × 220 mm

Net weight
50 kg

APPLICATIONS & SERVICE

# Where it works, and what comes with it

**Cell culture**
Steady orbital mixing in a warm room.

**Microbiology**
Aerated flask cultures with repeatable motion.

**Solubility & extraction**
Continuous agitation for dissolution and extraction.

**Teaching labs**
Simple, safe and quiet on any bench.

## INSTALLATION

**Power**
AC 220 V ±10 %, 50/60 Hz; 110 V ±10 %, 60 Hz optional.

**Environment**
Temperature-controlled room or warm room (natural convection).

**Footprint**
680 × 615 mm (300D) · 550 × 480 mm (310A).

## WARRANTY & SERVICE

**Warranty**
Major defects under warranty: full refund or replacement.

**30-day returns**
Return most new, unopened items within 30 days.

**Free DDP shipping**
Delivered duty paid, no surprise import charges.

**Formal quotation**
PDF quote on request, with a confirmed ship date.

## Request a quotation

Send your application, model and quantity through www.lorderan.com and we will reply with a formal PDF quotation.

DS-300D-310A-EN · Rev. B · Nov 2026 · Calculated values are reference figures. Specifications may change without notice for product improvement.

LORDERAN
**www.lorderan.com**
Laboratory and environmental test equipment