LORDERAN

TECHNICAL DATASHEET
DS-110X-EN · REV. B · NOV 2026

LABORATORY SHAKER

Reciprocating **Shaking Water Bath**

Gentle, even agitation in water at **±0.1 °C** — from 5 °C above ambient to **99.9 °C**, with a balanced 25 mm stroke at **20–200 rpm**.

MODELS

110X12 | 110X24 | 110X48





110X12



110X48

99.9 °C MAXIMUM TEMPERATURE	**±0.1** °C ACCURACY AND UNIFORMITY	**20–200** rpm SPEED RANGE	**±1** rpm SPEED ACCURACY
25 mm RECIPROCATING STROKE	**46–170** L THREE BATH SIZES	**8** PROGRAMMABLE CURVES	**316L** STAINLESS STEEL LINER

01 **Water carries the heat**
Every flask sits in the same bath, so a full load reaches temperature together.

02 **Balanced track drive**
Suspension-buffered, anti-shake transmission runs quietly and steadily.

03 **Protected end to end**
Independent over-temperature, over-speed, leakage and surge protection.

APPLICATIONS

Enzyme reactions · Hybridisation · Bacterial and cell culture · Dissolution, extraction & QC

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

Water heats every flask evenly

A heated water bath with a reciprocating shaker built in, for samples that need gentle, even agitation while they incubate. Water carries heat into every flask far faster than air, so the bath holds its set point to **±0.1 °C** from 5 °C above ambient up to 99.9 °C.

In air, the flasks nearest the heater warm first. In water, a full load reaches temperature together and stays there, while the suspension-buffered track drive moves the plate in a straight 25 mm stroke with low noise and no wobble.

HOW IT WORKS

01 Water bath
316L stainless steel liner; PID microprocessor with environment scanning holds ±0.1 °C.

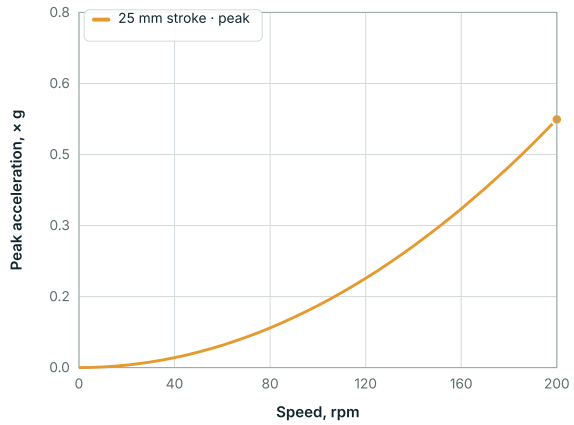
02 Track balanced drive
60 W inverter motor; 25 mm reciprocating stroke, 20–200 rpm at ±1 rpm.

03 Soft acceleration
Starts slowly and speeds up smoothly so samples do not splash.

04 Programs
Repetition, steps and eight curves; timer 0–999 h 59 min or continuous.

05 Protection
Over-temperature and over-speed alarms, leakage and surge protection; run resumes after a power cut.

Stroke and speed. Peak acceleration of the 25 mm reciprocating stroke rises with the square of speed.



TEMPERATURE
RT+5…99.9 °C
±0.1 °C accuracy and uniformity

SPEED
20–200 rpm
±1 rpm accuracy

STROKE
25 mm
reciprocating, track balanced drive

MOTOR
60 W
maintenance-free inverter motor

RECIPROCATING MOTION

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

r = half the stroke (12.5 mm) · n = strokes per minute. At 200 rpm the plate peaks at about 0.56 g.

Mind the lowest set point
Control starts 5 °C above ambient, so the lowest set point depends on the room.

Keep the water level up
Flasks should sit in water above their liquid level for even heat transfer.

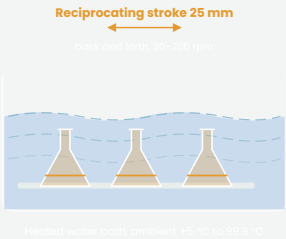
Use clean water
Distilled or deionised water limits scale on the heater and the 316L liner.

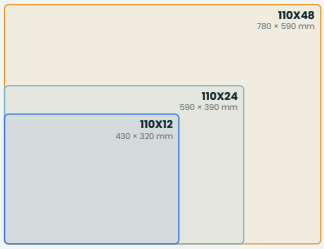
FEATURES

Protected from the controller to the plate



Flasks in the stainless bath





01 Control

- PID microprocessor with environment scanning
- Large backlit LCD with set and measured values
- Programs with **repetition, steps and eight curves**
- Timer **0–999 h 59 min**, or continuous
- Parameter memory avoids re-entering settings

02 Drive

- **Track balanced-drive** type, reciprocating
- Suspension-buffered, anti-shake transmission
- Acceleration control: slow start, smooth ramp
- **60 W** maintenance-free inverter motor

03 Protection

- Over-temperature sound and light alarm
- Power cut automatically if the motor overheats or temperature runs away
- Independent **excess-speed alarm** and watchdog timer
- Independent leakage and surge protection
- Parameters can be encrypted and locked

04 Build

- **316L stainless steel** liner
- Electropolished stainless steel rocking plate, springs and flask clamps
- Electrostatic-sprayed body with large tempered glass window
- One-key reset and clock display

TECHNICAL SPECIFICATIONS

Technical specifications

Parameter	110X12	110X24	110X48
Volume	46L	82L	170L
Shaking plate	430×320 mm	590×390 mm	780×590 mm
250 ml flasks	14	28	50
500 ml flasks	9	16	30
1000 ml flasks	6	9	21
Power	1900W	2300W	4500W
CONTROL AND DRIVE			
Control Mode	PID (Microcomputer scans the micro-processing chip)		
Display Mode	LCD		
Shaking Mode	Reciprocating		
Drive Mode	Track balanced-drive type		
Speed Range	20~200rpm		
Speed Accuracy	±1 rpm		
Stroke Length	25mm		
Programming Function	Programing of repetition, steps and eight curves settings		
Timing Range	0 – 999h59mins / continuous		
Motor	60W Inverter motor		
TEMPERATURE			
Temperature Control Range	Ambient temperature 5°C-99.9°C		
Temperature Accuracy	±0.1°C (Constant temperature)		
Uniformity	±0.1°C		
SAFETY			
Safety Functions	Speed storage, automatic shutdown, temperature and speed correction, monitoring timer, clock display, call recovery, parameter memory, parameter encryption, one-key reset		
Additional Functions	Watchdog timer, independent excess speed sound/light alarm, independent electric leakage, leakage/surge protection device		
CAPACITY			
Shaking Plate Quantity	1		
Maximum Capacity	250ml×14 or 500ml×9 or 1000ml×6	250ml×28 or 500ml×16 or 1000ml×9	250ml×50 or 500ml×30 or 1000ml×21
Size of Shaking Plate	430×320 mm	590×390 mm	780×590 mm
DIMENSIONS, WEIGHT AND POWER			
Material	316L stainless steel		
Chamber Size	510×380×240 mm	700×455×260 mm	940×660×275 mm
External Size	760×508×388 mm	942×580×405 mm	1240×700×830 mm
Net Weight	56kg	68kg	133kg
Voltage	AC 220V±10%, 50/60 Hz; 110V, 60Hz optional (External transformer for model 110X12, 110X24).		

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

AT A GLANCE

MODEL	110X12	110X24	110X48
Bath volume	46 L	82 L	170 L
Shaking plate	430 × 320 mm	590 × 390 mm	780 × 590 mm
External size	760 × 508 × 388 mm	942 × 580 × 405 mm	1240 × 700 × 830 mm
Power · weight	1900 W · 56 kg	2300 W · 68 kg	4500 W · 133 kg

APPLICATIONS & SERVICE

Where it works, and what comes with it

Enzyme reactions

Even agitation at a precise temperature for kinetics and digestion.

Hybridisation

Stable warm incubation with gentle, constant motion.

Bacterial and cell culture

Shaken flasks warmed uniformly by water, not air.

Dissolution, extraction & QC

Food and pharma QC, dissolution and extraction to 99.9 °C.

INSTALLATION

Power
AC 220 V ±10 %, 50/60 Hz; 110 V, 60 Hz optional (external transformer for 110X12 and 110X24).

Environment
Level bench or floor; keep the bath away from draughts for best uniformity.

Footprint
Up to 1240 × 700 mm (110X48).

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.

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Specifications may change without notice for product improvement.

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Laboratory and environmental test equipment