



Vertical Autoclave

LX905VA

Index

Sr.no	Title	Page no
1.	Safety Measures	2
2.	Introduction	3
3.	Features	3
4.	Specifications	4
5.	Applications	4
6.	Instrument Introduction	5
7.	Installation	6
8.	Operations	7
9.	Maintenance	8
10.	Troubleshooting	9
11.	Accessories	11
12.	Replacement	12

1. Safety Measures

- Ensure the door is fully locked before operation.
- Verify the pressure gauge reads zero before starting.
- Do not force-open the door under any circumstances.
- Avoid touching high-temperature components; use heat-resistant covers if necessary.
- Regularly check for unusual noises or vibrations during operation.
- Maintain a safe distance from moving or heated parts.
- Keep the area around the equipment clear of obstructions.
- If a malfunction occurs, immediately disconnect the power.
- Ensure only trained personnel operate the equipment.

Safety warning:

- Always disconnect the power and release chamber pressure to 0MPa before troubleshooting.
- Do not disassemble circuit boards or safety valves without professional training.

Safety Mechanisms:

- Mechanical safety valve.
- Dual interlock system (door locking when unsealed; pressure release required before opening).
- Drying System (optional): 60–110°C drying temperature to reduce post-sterilization moisture.

2. Introduction

Vertical Autoclave LX905VA is a top-loading sterilizing mechanism made of stainless steel SUS304 with an in-built steam generator. It's equipped with a PID processor-controlled system with a digital display to identify pressure, time, temperature, water level, error code, and a touch-type keypad, a safety interlock system that does not allow the door to open until there is no pressure in the chamber, silicon rubber seal for preventing from water leakage. It's safe equipment for sterilizing glass wares, biological materials, fabrics and culture media in clinical laboratories, research centers, schools, colleges and universities, and the healthcare industry.

3. Features

- It has PID processor control, fully automatic running with a digital display to show the working status of pressure, time, temperature, water level, error code, and touch type key
- Having a steam generator made of SUS304 fully stainless steel also cools the air, and steam discharges automatically after sterilization
- Wing nut locking mechanism, door lock system for safety purposes
- Equipped with an automatic power cut-off facility for water shortage conditions
- Automatically shut down after the sterilization process completes with a beep voice indication
- Equipped with Automatic safety for over-temperature, pressure and current
- Tempered glass for anti-scald protection
- Double scale indication pressure gauge
- User-friendly door structure
- Equipped with an automatic water sensor and water level indicator with a draining output tap and water level indicator
- Standard PT/TT test interface is provided for convenient testing
- Facilitate safety features
- With one stainless steel drum and casters with brake

4. Specifications

Model No.	LX905VA
Volume of chamber	150 Liters
Control	PID
Display	Digital display
Sterilizing chamber volume	Ø460 x H700 mm
Working pressure	0.22 Mpa
Max. working pressure	0.23 Mpa
Working temperature	134 °C
Adjustment of temperature	100 - 134 °C
Sterilization timer range	0-999 Minutes
Temperature accuracy	0.1°C
Heat average	≤ 1°C
Power	4.0KW, 110-240V. 50/60Hz
Product dimension	620 x 620 x 1210 mm
Net weight	105 kg
Package dimension	670 x 680 x 1310 mm
Gross weight	120 Kg

5. Applications

Vertical Autoclave is used in Biotechnology, microbiology, the medical and healthcare industry, scientific research centers, schools, colleges, institutions and universities for sterilizing processes also suitable for items that are high temperature-resisting and high pressure-resisting including unwrapped or wrapped instrument, dressing, rubber, liquid, plant-in instrument, porous item, hollow instrument to be sterilized.

6. Instrument Introduction

Structure and components:

Sterilization Chamber: SUS304 stainless steel inner chamber with high-temperature and corrosion resistance, featuring dual-layer silicone sealing rings.

Control system:

- Digital Display Panel LED screen for real-time temperature, pressure, and time monitoring; supports preset parameters.
- **Microprocessor Control:** Fully automated operation, including heating, sterilization, exhaust, and drying phases.

7. Installation

7.1 Installation requirements

- 1) **Power Supply:** AC220V±10% with reliable grounding.
- 2) **Environment:** Well-ventilated area, fireproof surroundings, floor load capacity $\geq 100\text{kg/m}^2$.
- 3) **Water Source:** Use distilled or purified water to prevent scaling.

7.2 Commissioning steps

- 1) Inspect sealing rings and door lock functionality.
- 2) Fill the water to the designated level and preheat the system.
- 3) Conduct an empty-chamber test run to verify stable pressure and temperature.

8. Operations

8.1 Sterilization Procedure

- 1) **Loading:** Arrange items evenly to avoid blocking steam channels.
- 2) **Parameter Setup:** Set temperature (recommended 121°C or 134°C) and time (20–30 minutes standard) via the control panel.
- 3) **Start Cycle:** Automatic execution of heating, sterilization, exhaust, and drying (if enabled).
- 4) **Completion:** Audible/visual alert signals the end; open the door only after pressure returns to zero.

8.2 Drying Function Operation

Enable drying mode via the control panel, and set time (30–60 minutes).

9. Maintenance

- 1) **Daily:** Clean the chamber interior thoroughly.
Inspect water level sensors for any buildup or malfunction.
- 2) **Weekly:** Clear drainage filters to prevent clogging.
Test the functionality of the safety valve to ensure proper operation.
- 3) **Monthly:** Replace sealing rings if they show signs of wear or aging.
Calibrate temperature sensors for accurate readings.
- 4) **General Maintenance:** Keep all components free from dust and debris.
 - Check for leaks, unusual noises, or irregularities in operation.
 - Ensure all moving parts are well-lubricated.
 - Maintain a log of inspections and maintenance activities.

Preventive maintenance recommendations:

- 1) **Monthly:**
 - Inspect electrical terminals for looseness.
 - Test safety valve activation pressure (0.22 ± 0.02 MPa).
- 2) **Annual:**
Replace all sealing rings and drainage filters.

10. Troubleshooting

Common fault categories and rapid diagnosis:

10.1 Device fails to start

Symptom	Possible cause	Solution
No power indicator	Power not connected/fuse blown	Check the power socket and cable; replace the 5A fuse (located in the control cabinet)
The door lock indicator blinks	Door not fully closed/sensor fault	Re-close the door securely; clean door lock contacts or replace the sensor.
Display unresponsive	Control board power failure/screen damage	Inspect the control board wiring.

10.2 Sterilization cycle interrupted

Symptom	Possible cause	Solution
The cycle stops during sterilization	Low water level/sensor failure	Refill distilled water to the MAX line; clean or replace the sensor.
Sudden pressure drop with alarm	Sealing ring aging/chamber leak	Replace the sealing ring; inspect chamber welds.

10.3 Electrical system fault diagnosis

10.3.1 Heating tube failure

Symptom: Slow heating or failure to reach the target temperature.

Diagnosis:

- 1) Measure the resistance with a multimeter after power-off.
- 2) If resistance is infinite, replace the heating tube.

10.3.2 Temperature sensor assembly

Symptom: Temperature fluctuations or deviations $>\pm 2^{\circ}\text{C}$ from set value.

Calibration:

- 1) Compare the sensor with a calibrated thermometer (e.g., in boiling water at 100°C).
- 2) Enter "**Calibration Mode**" via the control panel (hold the SET button for 5s) to adjust the offset.

10.4 Mechanical and Sealing System Fault Analysis

10.4.1 Door seal leakage

Symptom: Pressure loss during operation with audible steam leakage.

Procedure:

- 1) Inspect sealing rings for cracks or deformation (replace every 6 months).
- 2) Clean door frame contact surfaces to ensure proper sealing.

10.4.2 Frequent safety valve activation

Possible Causes:

- 1) Weak safety valve spring (adjust to trigger at 0.22MPa).
- 2) Pressure sensor signal drift (recalibrate or replace).

10.5 Temperature and Pressure Control Anomalies

10.5.1 Temperature below target (<121°C)

Diagnosis:

- 1) Verify heating tube functionality.
- 2) Ensure the exhaust valve is fully closed to prevent heat loss.
- 3) Clean the temperature sensor probe to remove scale buildup.

10.5.2 Excessive Pressure (>0.25MPa)

Emergency Protocol:

- 1) Press the "**Emergency Stop**" button immediately.
- 2) Manually release pressure via the safety valve (rotate counterclockwise 1/4 turn).
- 3) Check the PID parameter settings.

10.6 Drying Function-Specific Troubleshooting

10.6.1 Post-Drying Moisture Retention

Possible Causes:

- 1) Insufficient drying time (recommended ≥ 45 minutes at $\geq 80^\circ\text{C}$).
- 2) Clogged exhaust pipe.

10.6.2 Drying Mode Failure

System Check:

- 1) Confirm device model supports drying (optional).
- 2) Test drying relay activation.

10.7 Fault Code Interpretation and Reset Procedures

Code	Description	Action
E01	Temperature sensor open circuit	Inspect the wiring or replace sensor
E03	Low water level	Refill water above MIN line; reset and restart it.
E12	Door lock signal error	Clean/replace the door lock sensor.

Reset Procedure:

Press "**Reset**" to clear alarms; if persistent, investigate root cause.

11. Accessories

Optional Accessories

S. No	Accessory Name
1	Drying function
2	Printer

12. Replacement

1) Sealing ring replacement

- Remove the old ring.
- Clean the groove and apply silicone grease.
- Install new ring without twisting.

2) Pressure sensor calibration

- Connect a calibrated pressure gauge (0–0.4MPa range).
- Access "**Advanced Settings**" on a control panel to input actual pressure.



71-75 Shelton Street Covent Garden, London WC2H 9JQ, UK
Email: info@labdex.com | Website: www.labdex.com