

LIFTING DOOR PULSE VACUUM STERILIZER (HA-BV SERIES)



SERVICE MANUAL FOR MAINTENANCE

Daily Maintenance Procedures

1. General Maintenance

✓ Filter Cleaning

Clean filters regularly to ensure sterilization effectiveness.

✓ Chamber Maintenance

Keep the chamber dry and clean during prolonged inactivity. Always close the door securely.

After each sterilization cycle (once cooled to room temperature), promptly clean the chamber and trays to prevent contamination in future cycles.

✓ Safety Valve Maintenance

Manually lift the safety valve handle monthly to release air and prevent blockages.

✓ Temperature Sensor Care

Handle with care to avoid damage. Do not pull wires forcefully.

✓ Monthly Tasks

Clean chamber walls and inspect pressure gauges.

Calibrate temperature sensor probes.

Drain residual water from compressed air line filters.

✓ Electrical Safety

Avoid water contact with electrical components to prevent short circuits.

✓ **Pneumatic Valve Maintenance**

Clean regularly to ensure unobstructed operation.

✓ **Water/Steam Filter**

Remove and clean mesh filters in piping systems weekly; deep-clean every 6 months.

2. Door Component Maintenance

✓ **Weekly Lubrication**

Apply Vaseline to sliding grooves.

✓ **Gasket Care**

Keep clean and inspect for debris before closing. Avoid mechanical damage.

Note: Door malfunctions often stem from heated gasket expansion or reducer gearbox issues.

✓ **Limit Switch Adjustment**

Regularly check and realign limit switches to prevent displacement from mechanical contact.

3. Critical Operational Guidelines

Safety Protocols

✓ **Authorized Operation**

Only trained personnel may operate the unit. Maintain supervision until cycles complete, including power disconnection.

✓ Solution Sterilization

Use heat-resistant glass bottles ($\leq 3/4$ volume) with cotton gauze. Place bottles in enamel/metal trays to contain potential breakages.

✓ Material Separation

Do not sterilize mixed materials (e.g., textiles + liquids) in the same cycle.

✓ Power Requirements

Ensure voltage matches specifications ($\pm 10\%$ of 380V/50Hz).

✓ Long-Term Storage

Drain vacuum pump water to prevent corrosion; lubricate moving parts.

✓ Pressure Vessel Compliance

Schedule annual inspections with certified agencies.

✓ Operator Training

Personnel must understand device mechanics, sterilization principles, and emergency procedures.

✓ Electrical Safety

Never open electrical panels without authorization.

✓ Posting Requirements

Display operation rules near the unit.

✓ Emergency Procedures**✓ Power Failure**

Brief Interruption (<5 mins): Cycle resumes automatically upon power restoration.

✓ **Prolonged Outage:**

- Do not open the door until pressure/temperature normalize.
- Turn off main power and steam valve before restarting.
- For urgent access: Fully open drain valve to depressurize (0 MPa). For liquids, wait until chamber $\leq 55^{\circ}\text{C}$.

✓ **Compressed Air Failure**

Immediate Action:

- If chamber pressure is positive: Open drain valve fully, then slowly open door at 0 MPa.
- If negative: Use manual mode to equalize pressure before proceeding.

✓ **Liquid Precautions:** Always verify temperature $\leq 55^{\circ}\text{C}$ before opening.

Monthly Inspection Checklist

| Component | Inspection Focus | Action |
|-------------------|----------------------------------|-------------------------|
| Chamber & Door | Leaks/corrosion; seal integrity; | Tighten screws; replace |
| | loose parts | damaged seals |
| Piping & Valves | Leaks; safety valve function; | Clean/replace filters; |
| | filter debris | steam leak repairs |
| Electrical System | Wiring integrity; grounding; | Replace frayed wires; |
| | component status | secure connections |

✓ Troubleshooting

- **No Pressure/Temperature Display:** Check transmitter cables.
- **Temperature Fluctuations:** Test sensor functionality.
- **Pump Failure:** Verify thermal relay activation.

Periodic Inspection Record

Date: _____

Inspector: _____

Signature: _____

| Item | Status (✓) | Notes |
|---------------------|--|-------|
| Chamber/Door | <input type="checkbox"/> Good <input type="checkbox"/> Bad | |
| Piping & Components | <input type="checkbox"/> Good <input type="checkbox"/> Bad | |
| Electrical System | <input type="checkbox"/> Good <input type="checkbox"/> Bad | |