VHP™ LTS60
Low Temperature Sterilizer

Vaporized Hydrogen Peroxide Systems

APPLICATION

The VHP LTS60 Low Temperature Sterilizer using Vaprox™ 59 Hydrogen Peroxide Sterilant is intended for use in the terminal Sterilization of properly prepared (cleaned, rinsed, and dried) instruments in Life Science Facilities. The pre-programmed Sterilization Cycles (**Lumen Cycle, Non Lumen Cycle, Fast Cycle,** and **Flexible Cycle**) operate at low pressure and low temperature and are thus suitable for processing instruments without leaving toxic residues.

DESCRIPTION

The Sterilizer is specifically designed to only process goods using vaporized hydrogen peroxide under vacuum conditions. The process is fully automated, is compatible with a broad range of materials, and has rapid Sterilization Cycle times. There are no toxic by-products created by the Sterilization Cycle – only water vapor and oxygen are produced.

This Sterilizer is NOT intended to process liquids, linens, powders, or cellulose materials.

The Sterilizer utilizes specially designed, disposable, multi-use cups (available separately) containing Vaprox Sterilant and is available with single door configuration.

Articles to be sterilized are placed on a racking system within the aluminum chamber. An automated control enables the cycle to be started and monitored by the operator. The touch screen is user friendly and easy to operate.

System installation requires no plumbing, ventilation, or air supply – only a dedicated electrical connection is needed. A power cord is supplied for this connection.

SPECIFICATIONS

Overall Sterilizer Dimensions (W x L x H):	22-1/2 x 32-7/8 x 61-1/2" (572 x 835 x 1562 mm)
Chamber Size (W x L x H):	13 x 28 x 10" (330 x 711 x 254 mm)
Chamber Volume:	2.1 cubic feet (60 L)
Weight lb (kg)	540 lb (245 kg)
Electricity	120 Vac, Single phase, 50/60 Hz, 20 Amp
	220–240 Vac, Single phase, 50/60 Hz, 10 Amp
	200 Vac (Japan), Single Phase, 50/60 Hz, 12 Amp

STANDARDS

This VHP LTS60 Low Temperature Sterilizer meets the applicable requirements of the following standards in accordance with all applicable sections of UL and CSA, **as certified by INTERTEK Testing Services:**

- Underwriters Laboratories (UL) Standard EN 61010-1:2010+A1:2019
- Canadian Standards Association (CSA) CAN/CSA 22.2 No. 61010-1 2012 (R2017)

Governing Directive for the affixing of the CE mark:

- EU Regulation (EU) 2023/1230 on Machinery

Sterilizer Development and Validation conforms to:

- ANSI/AAMI/ISO 14937:2009
- ANSI/AAMI/ISO 22441:2022

FEATURES

The chamber and door assembly are aluminum equipped with a silicone rubber gasket for the door and a welded backhead for the chamber.

Insulation fitted on the chamber wall exterior, door, and backhead is 1/2" (13 mm) thick (nominal). Insulation is held in place with adhesive.

Insulation is constructed of asbestos- and chloride-free, oil, and moisture resistant urethane foam.

Automatic door locking mechanism keeps the sterilizer door locked during the entire Sterilization Cycle. After cycle completion, the door is electrically unlocked. The sterilizer door cannot be opened if electrical power is lost during sterilizer operation. When sterilization system is in Standby mode, there are no door opening restrictions.

Foot sensor located on bottom left of Sterilization Unit to enable hands-free door opening. Place foot under indicator to open door.

Chamber heating is achieved through electric strip heaters attached to the chamber sides, bottom wall, door and backhead. Operating temperature is approximately 122 F (50 C).

Sterilant cup interface only accepts Vaprox Sterilant Cups. The system control automatically tracks the amount of Vaprox Sterilant used and the Sterilant expiration date. The control prompts the user on the control display when a new cup is needed.

The proprietary cup is equipped with a data matrix code to ensure the correct cup is used in the Sterilization Unit and that the cup contents are not expired; no cup code (or other information) needs to be entered by the user as the RFID is read by the control automatically when a new Cup is inserted.

There are two Cup options available:

- PB036 (good for 20–30 Cycles depending upon Cycles chosen)
- PB037 (good for 5–6 Cycles depending upon Cycles chosen)

Once Cup is punctured by the Sterilization System, it has a 14-day “in Unit” shelf life. After use, empty Cups may be disposed in regular waste.

Catalytic converter receives outflow from chamber during all cycle phases.

Catalytic converter converts hydrogen peroxide into water vapor and oxygen.

Other Components:

The following are furnished to obtain a complete working unit, ready for (but not including) connection to the Facility service lines:

- **Resistance Temperature Detectors (RTDs)** are installed for sensing and displaying temperature control of vaporizer and chamber. Signals from all system RTDs, converted into electrical impulses, provide accurate control inputs and readouts throughout the entire cycle.
- **Pressure Transducers** are installed for sensing and displaying chamber pressure control. Signals from all system pressure transducers, converted into electrical impulses, provide accurate control inputs and readouts throughout the entire cycle.
- **Solenoid Valves and Switches** are used in the sterilization system design to simplify piping and increase serviceability.
- **Chamber Air Supply and Vacuum Filters** are supplied to ensure air entering chamber is High Efficiency Particulate Air (HEPA) filtered (prevent chamber recontamination) and air exhausted from vacuum pump is free of entrapped oil and odor.
- **High Power Vacuum Pump** produces cycle vacuum pulses that remove air and moisture from chamber. The direct drive rotary vane pump is quiet (56 dB) with low vibration. A powerful 1.0 HP (0.75 kW) motor produces a displacement of 21 CFM (35 m3/hr) and helps alleviate moisture sensitivity in the sterilization unit. The Sterilizer operating pressure is from atmospheric pressure down to less than 1 Torr.
- **Sterilization System Panels** are constructed of stainless steel.
- **Sterilization System Frame** and support system is constructed of welded carbon steel.

CONTROL DESCRIPTION

The VHP LTS60 Low Temperature Sterilizer is equipped with a proprietary control system and a thermal printer.

- **Control Display Panel** is located on the front of the Sterilization Unit in the upper left while facing the unit. This color touch panel provides user information and allows user inputs. The display is a 800 x 600 pixel resolution, 8.4" screen. Use of this panel and associated screens is normally self-explanatory. The screens are color coded for operator convenience as follows:
  - Control Screens: Condition Phase - Green, Sterilize Phase - Blue, and Aeration Phase - Violet
  - Service Screens - Light Blue
  - Option Screens - Purple
  - Alarm Screens - Red

NOTE: This Sterilizer permits no manual control of the Sterilization Cycles.

The Ready, Status, Standby, and Cup Empty screens include a cup level indicator (similar to a cell phone battery indicator) in the lower right corner. For normal operation (with Vaprox Sterilant), each bar represents approximately five cycles remaining (e.g., four bars means cup contains enough Sterilant for 16-20 cycles).

- **Printer** is located on the front of the sterilization unit on the left side (under the control Display Panel) while facing the unit. This thermal printer provides an easy-to-read permanent record of the Sterilization Cycle. Printer provides a 2-1/4" (5.7 mm), 24-character wide cycle tape and paper take-up.

CYCLE DESCRIPTIONS

The VHP LTS60 Low Temperature Sterilizer is equipped with four pre-programmed Sterilization Cycles: Lumen Cycle (approximately 60 minutes to complete), Non Lumen Cycle (approximately 28 minutes to complete), Fast Cycle (approximately 19 minutes to complete), and Flexible Cycle (approximately 38 minutes to complete). This Sterilizer also has the functionality for configurable cycles. Configurable parameters for these cycles include chamber pressure, sterilant pulses, and cycle phase hold times. Each Sterilization Cycle proceeds through three phases:

CONDITION, STERILIZE, and AERATION.

- **CONDITION** – This cycle phase consists of the reservoir filling and a vacuum pulse to remove air and moisture from the chamber. When setpoint is reached, load is tested for acceptable moisture content. If content is acceptable, cycle proceeds. If not, control orders a timed evacuation and load is tested for acceptable moisture content (up to three moisture evacuations). LOAD TEST REPEAT prints on cycle tape.

  NOTE: If Condition phase fails the third moisture check, the cycle Aborts.

- **STERILIZE** – This cycle phase consists of a series of pulses. Each pulse consists of: vacuum pulled to setpoint; Vaprox Sterilant vapor drawn into chamber; hold for programmed time; filtered air is introduced to setpoint; hold for programmed time; deep vacuum pulled to setpoint.

- **AERATION** – This cycle phase consists of pulling a vacuum to setpoint and continuing to evacuate for the programmed time. This phase is ordered by the control to reduce chamber vapor concentration. Once Aeration phase is complete, chamber pressure is brought to atmospheric level and the chamber door unlocks.

PREVENTIVE MAINTENANCE

Customers are encouraged to contact STERIS concerning annual maintenance programs. Preventive maintenance, adjustments and replacement of worn parts are provided on a scheduled basis to help ensure optimal equipment performance and help minimize untimely and costly interruptions. STERIS maintains a worldwide staff of well-equipped, factory-trained technicians to provide these services, as well as on-site installation, training and expert repair services. Contact STERIS for details.

Some of the VHP LTS60 Low Temperature Sterilizer preventive maintenance is usage-based. Vacuum pump preventive maintenance is due every 1000 cycles or six months. An oil can (yellow) appears on the screen when it is almost due for maintenance. The oil can changes to red when maintenance is required.

NOTES

1. Refer to equipment drawing showing all utility and space requirements for actual installation specifications. Clearances shown are minimum required for servicing equipment. Floor surface must be hard and level.
2. STERIS recommends maintaining and operating Sterilizer in area where temperature does not exceed 86 F (30 C). Per AAMI ST58:2013, it is also recommended to have a ventilation system exchanging area air at least 10 times per hour.
3. STERIS recommends a dedicated, grounded electrical circuit be provided for each Unit. Use of an extension cord is not recommended.
4. Consult SDS regarding storage and handling of Vaprox Sterilant Cups.
5. For Utilities, refer to Equipment Drawing.
6. STERIS assumes no responsibility for changes to the Sterilizer made necessary through failure to observe the supplied necessary specifications (e.g., incorrect Facility power supply).

Refer to the Following Equipment Drawing for Installation Details	
Equipment Drawing Number	**Equipment Drawing Title**
11066485	Equipment Drawing, Single Door Cabinet, VHP LTS60

Selections Checked Below Apply To This Equipment

POWER

- ☐ North America: 120 Vac, 1 phase, 50/60 Hz, 20 Amp
- ☐ Europe/Asia: 220–240 Vac, 1 phase 50/60 Hz, 10 Amp
- ☐ Japan: 200 Vac, 1 phase, 50/60 Hz, 12 Amp

OPTIONS

- ☐ Seismic Tie-Down Kit (11005145)[1]

Item:	
Locations:	

For Further Information, contact:

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The base language of this document is ENGLISH. Any translations must be made from the base language document.

CUSTOMER IS RESPONSIBLE FOR COMPLIANCE WITH APPLICABLE LOCAL AND NATIONAL CODES AND REGULATIONS.

1. *Conforms to the California Code of Regulations.*