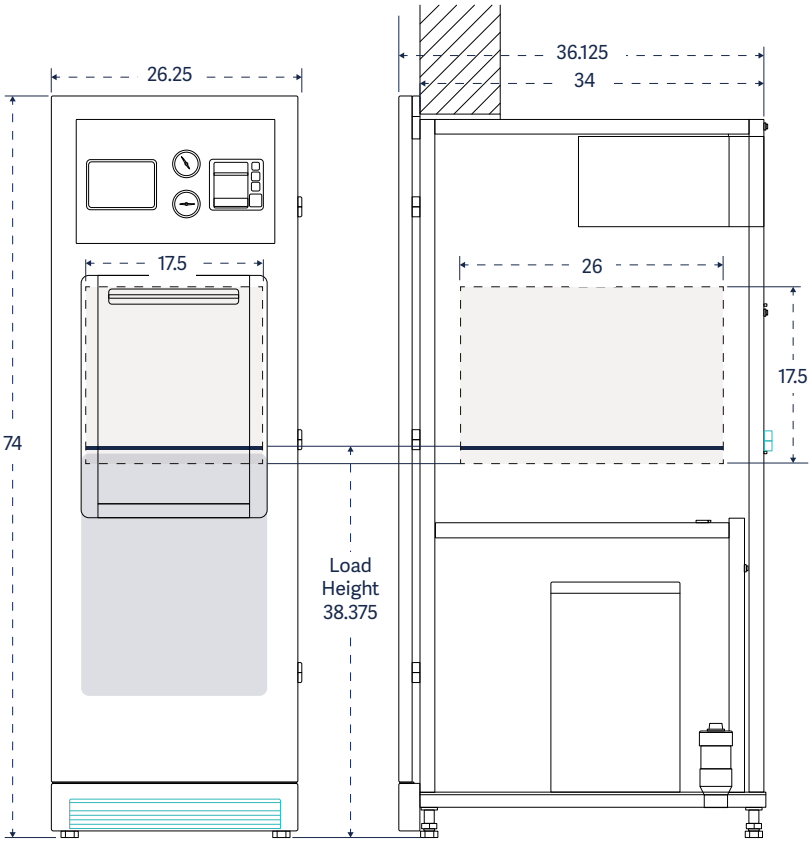
Getinge Lancer LSS 130

Laboratory Steam Sterilizer Specifications

GETINGE

Basic specifications



- **Internal Volume**
  4.6 cu. ft. (130 L)
- **Door Configurations**
  Single Door
- **Design Operating Temperature**
  Gravity/Vacuum Cycles: 230°–275°F (110°–135°C)
  Liquid Cycles: 219°–275°F (104°–135°C)
  Optional Low Temp Cycle: 169°–212°F (76–100°C)
- **Interior Dimensions (w × h × d)**
  17.5" × 17.5" × 26" (445 × 445 × 660 mm)
- **Exterior Dimensions (w × h × d)**
  Single Door: 26.25" × 74" × 36.125" (667 × 1880 × 918 mm)

Part 1:
Selection Guide

Door Configuration

- single door

Door Operation

- manual (standard)
- powered

Steam Source

- facility/house steam (standard)
- steam generator(s)

  - 208V, AC; 50/60Hz, 3-phase
  - 240V, AC, 50/60Hz, 3-phase
  - 380V, AC, 50Hz, 3-phase
  - 480V, AC, 60Hz, 3-phase
  - 600V, AC, 60Hz, 3-phase
  - carbon steel (standard)
  - stainless steel
  - manual blowdown (standard)
  - automatic blowdown
  - located integral to the sterilizer
  - remotely located

Air Removal

- ejector (standard)
- vacuum pump, liquid ring

  - 208V, AC, 60Hz, 3-phase
  - 380V, AC, 50Hz, 3-phase
  - 480V, AC, 60Hz, 3-phase

Additional Programs

- Sealed liquids and low temp cycles
  (vacuum pump and load probe required)

Recesses and Barriers

- recessed, one-wall
- freestanding (cabinet enclosure panels required)

Part 2:
General Specifications

The Getinge Lancer LSS 130 Steam Sterilizer is designed for high-performance sterilization of labware, media and laboratory byproducts used in research, analytical, environmental and industrial laboratories.

This steam sterilizer employs gravity downward displacement with positive pulse conditioning as well as pressure and vacuum pulsing to manage solid and liquid loads.

Up to 20 preprogrammed cycles are initiated by the microprocessor controller through the Avanti touchscreen user interface. All cycle phases are automatically sequenced, monitored and documented by the control system. Audible and visual cycle deviation warnings are included.

Specifications Index

Features and Benefits

The Getinge Lancer LSS 130 Steam Sterilizer includes a suite of features and benefits designed for performance and operator safety.

- A safety interlock prevents steam from entering the chamber if the door is not sealed.
- Steam safety valves protect the sterilizer chamber and jacket from over pressurization.
- If the optional powered door encounters an obstruction while closing a safety clutch stops door movement. If the obstruction remains the powered door motor shuts off.
- Real-time pressure in the chamber and jacket is displayed on two analog pressure gauges mounted on the cabinet front. These gauges operate independent of the microprocessor control or electrical power.
- The control system can be configured to automatically check any user-programmed cycle parameters to assure safe and effective cycle performance. If an authorized user attempts to program a cycle beyond recommended parameters a warning will appear.
- Modification of cycle parameters or name requires a supervisor password.
- An aborted cycle will generate a warning message and the sterilizer will require operator intervention before the chamber door can be opened.
- If emergency access to the chamber interior is required the gasket may be retracted manually to protect the door and gasket when opened.
- In the unlikely event of a door failure the gasket is designed to relieve pressure. Baffles at the chamber opening direct steam away from the operator.
- The cabinet design includes insulation and heat guards to protect the operator by minimizing temperature on surfaces around the chamber opening and door.
- If a high water level in the drain is not corrected automatically, an audible and visual warning will notify the operator.
- An Automatic Utilities Control (AUC) provides a seven-day timer for programmed start-up and shutdown of all systems. When activated, the AUC shuts off water and steam valves to the sterilizer, including the optional electric steam generator, to save energy. Cycles running during these shutoff times will proceed until completed.
- The discharge water controller conserves water by cooling drain effluent only when needed.
- The Getinge Lancer sterilizers are 90% recyclable by weight and produce no harmful byproducts.
- Optional cycles for lab applications such as sealed liquids and low temperature sterilization.

Door

☑ Single Door *(standard)*

Door Operation

☑ Manual *(standard)*

☐ Powered *(optional)*

The vertical door is manually operated and is counterbalanced for easy operation. When opened, the door lowers into the cabinet and requires no horizontal or vertical clearance in the laboratory. Opening and closing the door requires minimal up or down effort.

The door gasket is retracted until the cycle is started. When the cycle is initiated steam pressure behind the gasket automatically seals the gasket against the door.

A safety switch prohibits steam from entering the chamber if the door is not sealed. Once the chamber is pressurized the door cannot be opened. When the cycle is completed and steam pressure is relieved the gasket retracts and door automatically unseals. Gasket retraction assures a positive, continuous peripheral seal and protection against undue wear.

A manual gasket retract valve is provided for emergency chamber access.

The door is constructed of stainless steel and fully insulated with fiberglass insulation.

Powered Door Option. An optional powered door(s) is available. The powered door is operated by a foot switch at the base of the cabinet or via the control panel. If an obstruction occurs the door stops automatically. Pressing the foot switch also reverses direction. The powered door may also be operated manually. Specify when ordering.

Steam Source

☑ Facility/House Steam *(standard)*

☐ Electric Steam Generator, Carbon Steel

☐ Electric Steam Generator, Stainless Steel

Blowdown

☑ Manual *(standard)*

☐ Automatic *(optional)*

Steam pressure requirement is 40-50 psig, (2.76-3.45 bar). Flow requirements are 120 lb/hr.

The LSS 130 Steam Sterilizer is designed for connection to a facility (house) steam supply.

Electric Steam Generator Option. The optional electric steam generator can be located at the base of the sterilizer cabinet interior if space is available. The steam generator has a 30 kW capacity at standard three-phase voltages. Steam output is automatically controlled to maintain a minimum pressure of 40 psig (2.76-bar). An automatic feed water pump is standard. An automatic fill valve assures correct water level at all times.

An ASME CSD-1 low-water cut-off safety device is standard. The sterilizer On/Off switch also deactivates control power to the generator.

Carbon Steel. The steam generator is fabricated from carbon steel and is designed for use with standard tap water. Filtered water may be used to minimize the accumulation of minerals and deposits.

Stainless Steel. If higher purity water is supplied, an optional stainless steel steam generator is recommended. Contact your sales representative for details on material selection.

Automatic Blowdown Option. Motorized shutoff (ball valve) automatically uses steam pressure to minimize mineral accumulation in the steam generator. Seven-day timer permits the user to select time of day to schedule blowdown function.

Air Removal and Vacuum

☑ Ejector *(standard)*

☐ Liquid ring vacuum pump

Air is removed from the sterilizer chamber using the water-ejector method supplied standard.

Liquid Ring, Vacuum Pump Option. An optional liquid ring vacuum pump removes air from the chamber and load by a series of vacuum pulses with frequency and duration determined by the cycle selected.

The vacuum pump is mounted on vibration isolators to assure quiet operation.

If the vacuum pump option is selected, internal installation of an electric steam generator may not be available due to space limitations within the base cabinet. Contact your sales representative for details.

Installation

☑ Recessed, One-wall *(standard)*

☐ Freestanding *(cabinet enclosure panels required)*

The Getinge Lancer LSS 130 sterilizer is designed for standard one-wall or recessed installation.

Cabinet Enclosure Panels. Cabinet enclosure panels are required for freestanding installation to meet safety, code compliance and aesthetic requirements.

Chamber Inventory Loading Configuration

- Stainless Steel, Open Wire Shelves *(supplied, standard)*

☐ Additional Shelves

Stainless steel open wire shelves are supplied, standard.

Shelves are extendable on interior channels and easily removable for cleaning and are adjustable on 2.5" vertical centers (63 mm).

Optional Extra Shelves. Extra shelves are available; specify when ordering or following installation.

Controller

- PACS 3500 Programmable Logic Controller (PLC)

The control panel is located above the door for easy access. An internal deflection barrier routes vapor and moisture away from the door and electronic controls to protect components.

Sterilizer operation is supervised by a microprocessor, PACS 3500 programmable logic control (PLC). A color 8.4" SVGA display communicates all functions on a touchscreen user interface with password protection and administrative override. An integrated screen saver automatically dims the display to conserve power and extend the life of the display. The display will restore when the screen is touched. Audible and visual alarms are communicated through the user interface.

When installed and connected to specified utility services the sterilizer provides accurate and repeatable performance. During the timed exposure phase temperature is controlled by the chamber sensor at 1.44°F (0.8°C) above the setpoint. Temperature setpoints can be configured in 0.1°F (0.1°C) increments. Timing functions are selectable in one-second increments and accurate to within 0.04%. An internal battery with a 10-year life holds all preprogrammed cycles and user-programmed cycles in memory. In the event of a power interruption current cycle status is stored for up to one minute.

Graphic User Interface

- Touchscreen Interface
- 8.4" SVGA Color Display

A built-in menu is included. Temperature can be set, controlled and displayed in either °C or °F. Pressure is preset to display in psi (lb/sq. in). English is the default language. Spanish/French languages are available.

The Status Field appears across the top of each screen.

The status array displays the selected cycle number, cycle name, current cycle phase, cycle status and door status.

Text alarm messages and noncritical system messages are displayed in the status field.

The Button Field appears at the bottom of every screen and is used to give commands to the controller. These include:

- **Cycle Select** This field displays the listing of all preprogrammed cycles.
- **Login** The login field accesses password-protected features and overrides.
- **Menu** The menu field navigates among all operating screen options.
- **Door Controls** This door control field accesses door open, close and seal command.
- **Cycle Start** The cycle start appears green when all systems are ready to start the cycle. To start, tap the screen.

Process Display Screens arrange information in four unique formats to satisfy user preferences. These include bar, circle and plot graphs, plus a detail display of cycle selection with real-time monitoring, cycle status and alarm notifications.

- **Bar Graph** The bar graph displays chamber temperature and pressure in a bar graph with a large, easy-to-read digital format of time remaining. Cycle time is an average of the three cycles in each cycle type.
- **Circle Graph** The circle graph displays remaining time as a large circular icon on a digital display. Adjacent displays include exposure time, exposure temperature and drying time.
- **Plot Graph** The start screen displays a plot graph of various process parameters, with each parameter appearing in different colors. Additional parameters are displayed in the status field, with time remaining in an adjacent field.
- **Details Display** The details display screen displays real-time process data and time remaining in text form.

User Access is managed by an easy-to-use menu which restricts access to specific functions. Factory system defaults include cycle selection, door control and cycle start.

Submenus include System Menu, Process Screen, Documentation and Alarm History.

Additional functions and submenus may be made available by supervisor password access.

Supervisor Access requires a first-time password provided with the sterilizer documentation. Supervisor functions include all menus available through the main control system.

- **About** This menu permits the supervisor to apply a unique identification to the sterilizer.
- **User Management** Users can be added, edited or deleted through this screen.
- **Panel Setup** Allows configuration of default screen, volume level, screen saver, brightness and screen calibration.
- **Local Settings** Allows selection of Language, Date Format, Temperature and Pressure Measurement.
- **Reorder or Rename Cycles** Adjustable according to supervisor preference.
- **Edit Cycle Parameters** Supervisor override permits changes to all programmed cycles.
- **Alarm Clock** When activated this function sets On/Off timers for the Automatic Utilities Control to activate or deactivate the steam generator and water valves to save energy.
- **Print Last Cycle** Sends a print command to the thermal printer documenting the last cycle initiated.

Analog supplement controls and indicators include:

- Pressure Gauge, jacket
- Pressure Gauge, chamber

Built-in battery backup for onboard memory is included. Service routines and diagnostics are standard.

Cycle Documentation

- Thermal Printer
- Flash Drive
- Remote Printer

The printer is located on the main control panel. It documents cycle performance using 100-year warranted thermal paper. Printing is 200 dpi on 2.37" (60 mm) wide paper strip. Data collected includes:

- Process start time and date, sterilizer name and number, daily cycle number and total cycle count.
- Cycle selected with identification of time, temperature and any adjustable parameters.
- Cycle phase transition points, temperature, pressure and total cycle time.
- Process fault information messages with time of occurrence.
- Parameter check with a calculated, numeric process lethality.
- Summary verification of time at selected temperature with minimum and maximum exposure values.
- Cycle verification signature line.

The paper roll is replaced by a drop-in, quick feed motion with paper feed switch.

Printer strips can be accumulated on an automatic take-up reel or torn off for individual cycle storage. The printer permits a duplicate printout of the last cycle recorded.

A USB flash drive port with cover is provided for backup. Cycle performance data is automatically sent to the USB flash drive port for transfer to a USB memory device supplied with each sterilizer. The flash drive holds data for up to 10,000 cycles. Data from the USB port can be sent directly to a USB compatible printer in lieu of the flash drive.

Communications

A NetCOM communications card is standard and provides all cycle performance data to the USB port. NetCOM also supports a separate Ethernet connection between the sterilizer and selected external data management systems such as T-DOC or an approved facility network.

Depending on the communications required all cabling and intranet connections are the responsibility of the customer.

An RS-232 port is provided for serial communications for service diagnostics or program updates.

Preprogrammed Cycles

The Getinge Lancer LSS 130 sterilizer is factory programmed with standard sterilizing cycles. Each cycle is adjustable to meet specific reprocessing requirements. All user-accessible control functions can be changed by authorized users via a password-protected touchscreen data entry interface.

Parameter adjustments available through supervisor override include the following:

- Purge time
- Number of conditioning pulses
- Height of positive pressure conditioning pulses
- Depth of negative pressure (vacuum) conditioning pulses
- Exposure time and temperature
- Liquid cycle dwell time
- Liquid cycle exhaust rate
- Drying time
- Drying steam/air pulses (option)
- Sealed liquid settings (option)

Gravity.
Pressure pulse conditioning.

Default Temperature, Programmable: 250°F (121°C), 30 minutes exposure, 30 minutes dry time.

Purge Steam flows through the chamber for a programmed period, displacing air and preheating the load.

Conditioning A number of preprogrammed pulses are used to remove trapped air from the load through pressurization and depressurization pulses.

Heat Steam enters the chamber, heating the chamber and load to the exposure setpoint.

Exposure Steam is maintained in the chamber at the exposure temperature during the programmed exposure time.

Exhaust Steam is exhausted from the chamber allowing the chamber to return to atmospheric pressure.

Dry (Gravity) Filtered air is drawn through the chamber during the programmed dry time.

Air In Filtered air enters the chamber allowing atmospheric pressure to be restored

Cycle Complete Audible and visual notification of cycle finish with cycle documentation.

Vacuum.

Vacuum and pressure-pulse conditioning.

Default Temperature, Programmable: 250°F (121°C), 30 minutes exposure, 30 minutes dry time.

Purge Steam flows through the chamber for a programmed period, displacing air and preheating the load. Vacuum pump unit starts with deep vacuum and optional pulsing.

Conditioning A number of preprogrammed pulses are used to remove trapped air from the chamber and load through positive pressure and negative pressure-pulses.

Heat Steam enters the chamber, heating the chamber and load to the exposure setpoint.

Exposure Steam is maintained in the chamber at the exposure temperature during the programmed exposure time.

Exhaust Steam is exhausted from the chamber until chamber pressure is well below atmospheric pressure.

Dry (Vacuum) Vacuum is maintained in the chamber during the programmed dry time. For vacuum pump units there is steam/air pulsing during the dry time.

Air In Filtered air enters the chamber allowing atmospheric pressure to be restored.

Cycle Complete Audible and visual notification of cycle finish with cycle documentation.

Liquids Linear exhaust.

Default Temperature, Programmable: 250°F (121°C), 30 minutes exposure, dry time not applicable.

Purge Steam flows through the chamber for a programmed period, displacing air and preheating the load.

Liquid Heat Steam enters the chamber, heating the chamber and load to the exposure setpoint.

Liquid Dwell Chamber temperature is maintained to allow additional heat to be applied to the load before exposure begins.

Liquid Exposure Steam is maintained in the chamber at the exposure temperature during the programmed exposure time.

Liquid Exhaust Chamber pressure is slowly reduced until it is slightly below atmospheric pressure to prevent liquid boilover and allowing the load to cool.

Air In Filtered air enters the chamber allowing atmospheric pressure to be restored.

Cycle Complete Audible and visual notification of cycle finish with cycle documentation.

Vacuum Leak Test.

Tests total systems vacuum integrity.

Temperature: 268°F (131°C), 3 minutes exposure, 15 minutes dry time, 15 minutes test.

Preprogram Cycle Override.

Default factory cycles may be changed by a Supervisor with required password.

Additional/Optional Cycles.

☐ Sealed liquids and low temperature cycles (requires vacuum pump and load probe).*

Sealed Liquid Cycle The cycle is intended for sterilization of liquids in rigid sealed bottles. It uses a combination of air overpressure and jacket cooling to prevent deformation of a sealed liquid during cooldown.

Low Temperature Cycle The low temperature cycle is intended for laboratory processes such as Pasteurization and moist-heat conditioning within a temperature range of 169°F (76°C) to 212°F (100°C).

*Note this is a single option. Both cycles are selected as the option.

Chamber and Cabinet Construction

The chamber, jacket and door are constructed of 316L stainless steel. Interior chamber surfaces are polished to a high luster. The pressure vessel meets ASME code requirements for working pressures up to 45 psig (3.12 bar).

Front paneling is constructed of 0.05" (1.27 mm) #3 brushed finish stainless steel and is hinged for easy access to components including the gasket retract valve and steam generator if installed.

The gasket ring holds a continuous, one-piece silicone gasket 0.63" (16 mm) in diameter.

The sterilizer cabinet is thermally insulated with 1.5" (38 mm) fiberglass insulation, and double insulated between the jacket and "U" channel which reinforce the inner chamber.

The interior chamber includes a steam baffle to prevent condensation from wetting the load. An additional threaded opening permits insertion of thermocouple leads to independently monitor internal load temperatures.

Seismic brackets, standard.

Chamber Piping

☒ Process Piping *(standard)*

☐ Stainless Steel Piping Components

Process Piping. The steam connection to the chamber and jacket is of standard bronze, brass and copper.

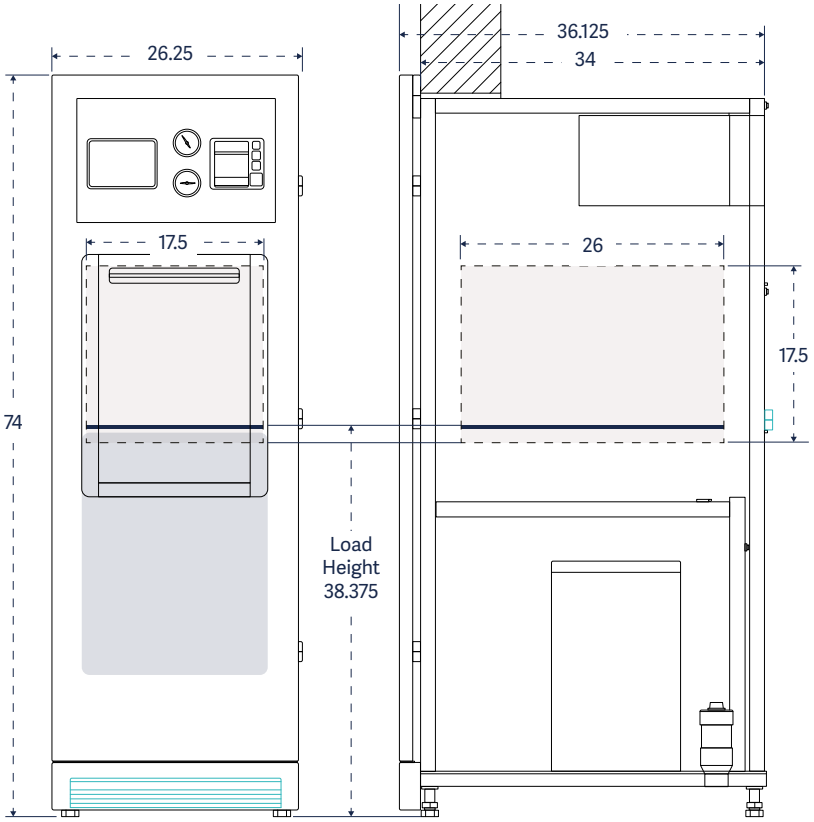
Stainless Steel Piping Option. Optional 304 stainless steel piping to the jacket and chamber connection components are recommended for installations where high purity water is used. Contact your sales representative for more information.

Options and Accessories

Option	Description
☐ Controller Load Probe	Monitors liquid load temperature during the sterilization cycle and allows for reduction of cycle time through the F0 function. Load probe is automatically detected without the need to setup separate load probe cycles. (Required for sealed liquids and low temperature cycles).
☐ Thermocouple Sealing Gland	Threaded port designed to permit insertion of independent thermocouples into chamber.
☐ Steam Generator, Integral	Electric steam generator, mounted within sterilizer chassis. Option dependent on available space if equipped with ither options.
☐ Steam Generator, Adjacent/Remote	Electric steam generator for installation adjacent to sterilizer.
☐ ASME Blowdown Separator *(for use with steam generator)*	ASME-certified, safely reduces steam generator water to atmospheric pressure before transfer to drain.
☐ Validation	Testing and certification documenting compliance with IQ/OQ protocols.
☐ Water-saver System	Closed-loop system designed to save vacuum ejector water by tempering and recirculating the water during long drying phases following sterilization.

Accessories	Description
☐ Supplemental Shelf, Extendable	Additional shelf; ordered separately.

Utilities and Site Preparation



Front

Side, Recessed

Side view illustrates facility wall cross section. Cabinet depth permits one-wall recess only. Requires wall opening cut-out size of 25"W × 72.25"H (635 × 1836 mm) prior to installation.

LSS 130 Configuration	Interior Volume cu. ft. (L)	Interior Dimensions W × H × D	Exterior Dimensions W × H × D	Ship Weight lb. (kg.)
Single Door	4.6 (130)	17.5" × 17.5" × 26" 445 × 445 × 660 mm	26.25" × 74" × 63.9" 667 × 1880 × 918 mm	965 (438)

Component	Selection Requirements	Connection
Sterilizer Controls	☐ 115V, AC, 60Hz, 1-phase ☐ 230V, AC, 50Hz, 1-phase	–
Cold Water Supply	Pressure (dynamic): 40 – 70 psig Peak Flow Rate: 5 gpm	¾" FPT
Drain	Floor sink/drain required.	–
Steam *(House Supply)*	Pressure (dynamic): 40 – 50 psig Flow Rate: 120 lb/hr Quality: Condensate free, between 97% and 100% saturated vapor	¾" FPT
Vacuum Pump *(Optional)*	☐ 208V, AC, 60Hz, 3-phase ☐ 380V, AC, 50Hz, 3-phase ☐ 480V, AC, 60Hz, 3-phase	–
Electric Steam Generator *(Optional)*	☐ 208V, AC, 50/60Hz, 3-phase ☐ 240V, AC, 50/60Hz, 3-phase ☐ 380V, AC, 50Hz, 3-phase ☐ 480V, AC, 60Hz, 3-phase ☐ 600V, AC, 60Hz, 3-phase	–
Hot Water Supply *(Steam Generator Option Only)*	Pressure (dynamic): 20 – 50 psig Flow Rate: 0.4 gpm	⅜" FPT
Compressed Air for Sealed Liquid Cycles	Pressure (dynamic): 70 – 100 psig Peak Flow Rate: 1 SCFM	¼" FPT

For more detail see arrangement drawing for Getinge Lancer LSS 130

Standards, Codes, Certifications and Compliance

UL/IEC 61010-1; UL/IEC 61010-2

CSA C22 No's 61010-1; 61010-2-45

ASME Code, Section VIII, Division 1, Code for Pressure Vessels

Canadian Registration Number (CRN) Pressure Vessel Design

Uniform Plumbing Code

Seismic Anchoring, per CBC 2013

Wastewater cooling is automatically cooled to below 140°F (60°C). Cooling water is used only when needed.

Warranty Information

Getinge Lancer products are supported by a standard industry warranty which starts on the date of shipment from our factory. This warranty is the result of thousands of successful applications in demanding laboratory and industrial applications.

Under the protection period this warranty covers defects in materials and workmanship. Our liability is, at our option, to repair or replace any defective parts of this equipment during the warranty period.

GETINGE

Getinge is a global provider of innovative solutions for operating rooms, intensive careunits, sterilization departments and for life science companies and institutions.

Based on our first-hand experience and close partnerships with clinical experts, healthcare professionals and medtech specialists, we are improving the everyday life for people – today and tomorrow.

Manufacturer
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www.getinge.com