

APPLICATION

The Finn-Aqua Life Science Research (LSR) Steam Sterilizer is designed to process laboratory animal caging systems, hard goods, porous loads and liquid loads in vented containers.

DESCRIPTION

The LSR is equipped with a fully-programmed PLC control system and is capable of sterilizing a variety of loads using saturated steam under pressure. Mechanical air-removal is used for porous loads or gravity (forced air) removal is used for liquids in vented containers or other items that cannot tolerate a vacuum. The average chamber temperature is controlled within $\pm 1.0^{\circ}\text{C}$ (1.8°F) of the sterilization temperature setpoint during the exposure phase.

The sterilizer is equipped with **Cycle B**, a standard high vacuum cycle provided for sterilization of all dry goods and porous loads



(Typical - details may vary.)

The Selections Checked Below Apply To This Equipment

MODEL (W x H x D)

- ☐ **LSR 91521**
950 x 1550 x 2150 mm
(37 x 61 x 85")
- ☐ **LSR 91821**
950 x 1850 x 2150 mm
(37 x 73 x 85")
- ☐ **LSR 92121**
950 x 2150 x 2150 mm
(37 x 85 x 85")
- ☐ **LSR 121821**
1250 x 1550 x 2150 mm
(49 x 61 x 85")
- ☐ **LSR 122121**
1250 x 2150 x 2150 mm
(49 x 85 x 85")
- ☐ **LSR 152121**
1550 x 2150 x 2150 mm
(61 x 85 x 85")
- ☐ **LSR 182121**
1850 x 2150 x 2150 mm
(73 x 85 x 85")

DOORS

- ☐ Single
- ☐ Double

MOUNTING CONFIGURATION

- ☐ Floor Mounted
- ☐ Pit Mounted

STERILIZER VOLTAGE

- ☐ 208 V, 3-Phase, 60 Hz
- ☐ 240 V, 3-Phase, 60 Hz
- ☐ 400 V, 3-Phase, 50 Hz
- ☐ 480 V, 3-Phase, 60 Hz
- ☐ 600 V, 3-Phase, 60 Hz

CONTROL SYSTEM

- ☐ Allen-Bradley PLC Control

OPTIONS

- ☐ Operator Interface Control Function (Both Sides)
- ☐ Control System, Remote Mounted
- ☐ Fascia Mounted Integral Control Panel
- ☐ Ethernet Connection
- ☐ Mirror Construction, Chamber Right Side
- ☐ Air Differential Seal
 - ☐ Sterile Side
 - ☐ Non-Sterile Side
- ☐ BioSeal (BL-3/BL-4)
- ☐ Air Tank Back-Up for Door Gasket
- ☐ Backflow Preventer
- ☐ Seismic Anchorage Restraints and Calculations
- ☐ Enclosure Side Panels
 - ☐ Right
 - ☐ Left
 - ☐ Back (Single Door Only)
- ☐ Chamber Polish to $< 0.6\mu\text{m}$ (25 $\mu\text{-in}$) Ra
- ☐ Cooling Water Saving Package (Closed Loop Cooling)
- ☐ Cooling Water Recycling Package

- ☐ Steam Pressure Reducing Valve (PRV)
- ☐ Utility Shutoff Valves
- ☐ Probe for Load Temperature
- ☐ VHP Manual Port
- ☐ VHP Ready
- ☐ Spare Parts Kit
- ☐ Split Crating
- ☐ Self Cleaning Drain Strainer
- ☐ Rub Rails
- ☐ Plant Steam Condensate Return (Jacket)
- ☐ Stainless-Steel Valves for Clean Steam

OPTIONAL CYCLES

- ☐ Cycle C (Liquids - Jacket Cooling)
- ☐ Cycle CA (Liquids - Air Cooling)
- ☐ Effluent Decontamination Cycle

ACCESSORIES

- ☐ Full-Length Loading Cart (1850 mm [73"])
- ☐ Half-Length Loading Cart (Two Carts per Load for 1850 mm [73"] and Longer Chambers)
- ☐ Transfer Trolley (Floor-Mounted Units Only)
- ☐ Wire or Perforated Shelves for Loading Cart
- ☐ Chamber Tracks

Item _____

Location(s) _____

at 110-138°C (230-280°F). Cycle B may also process liquids in vented containers using a slow exhaust post-conditioning phase. All sterilizers are fully tested prior to shipment to ensure proper operation.

STANDARDS

The sterilizer is manufactured in an ISO 9001, ASME Section VIII Division 1, PED Module H/H1 and EN ISO 3834-2 certified facility and meets applicable requirements of the following listings and standards. *Note: Equipment is provided with either ASME or PED stamped pressure vessel.*

- **Underwriters Laboratory (UL) Standard UL508**
(Local inspection required for full UL Stamp)
- **ASME Code, Section VIII, Division 1**
for unfired pressure vessels
- **European Directives (Europe) (CE)**
Pressure Equipment 97/23/EC (PED)
Machinery 2006/42/EC
Low Voltage 2006/95/EC
Electromagnetic Compatibility (EMC) 2004/108/EC
- **EN60204-1**

FEATURES

Control system, configured with an Allen-Bradley Programmable Logic Controller (PLC), monitors and controls all sterilizer operations and functions. The PLC controller allows up to 20 sterilizing cycles to be configured to meet the specific processing requirements. All control system components are mounted in an integral cabinet. The control cabinet can be equipped with a 10 m (33') interface cable for optional remote mounting.

Operator interface consists of a color touch-sensitive screen and integral impact printer located on the operating end of the sterilizer. All sterilizer functions, including cycle initiation and cycle configuration, are performed using the touch screen. Displayed messages are complete phrases with no codes that need to be cross-referenced. The screen also displays any abnormal (alarm) conditions that may exist in or out of a cycle.

If the sterilizer is equipped with double doors, indicator lights for cycle and alarms are provided on the non-operating end.

A 42-column impact printer provides real-time process data and alarm information in a comprehensive batch report.

Chamber and jacket pressure gauges are mounted on the non-sterile end. Pressure is displayed in bar/psi. If the sterilizer is equipped with double doors, an additional chamber pressure gauge is provided on the sterilizer's sterile end.

Resistance Temperature Detector (RTD) is installed in the chamber drain line to sense and control temperature variations within the chamber. The signals provide accurate control inputs and readouts throughout the entire cycle.

¹ PanelView™ Plus 700 is a trademark of Allen-Bradley, a Rockwell Automation Company.

Steam bleed supplies a constant steam flow across the chamber RTD to ensure even chamber temperature distribution.

Horizontal sliding door(s) is pneumatically operated using buttons located on the control panel. Each door is equipped with an air-activated gasket. When the cycle is complete, the gasket retracts under vacuum into a machined groove in the sterilizer's end frame. Double door units use air to seal the gasket when the unit is in stand-by.

Equipment documentation package includes one copy of the user manual. The manual includes an operator section, maintenance section, equipment drawing, process and instrumentation diagram (P&ID), electrical drawings, mechanical/electrical parts list, spare parts list, component cut sheets, factory test results, and pressure vessel certificate.

Calibration is provided through the control panel to all system temperature and pressure channels. Calibration is performed in the Calibration mode, accessible through the touch-screen display, and accomplished using external temperature and pressure sources. The control system provides a printed record of all calibration data for verification of current readings.

CYCLE DESCRIPTION

Standard Process Cycles

Depending on the cycle options selected, the sterilizer is factory-programmed with the following process cycles:

- **Cycle B (Prevacuum, Gravity [Forced Air] and Liquid Cycles)** is a standard high vacuum cycle provided for sterilization of all dry goods and porous loads at 110-138°C (230-280°F). Preconditioning includes an air-removal phase using vacuum and steam pulses. Alternatively, preconditioning can use gravity (forced air) removal. Gravity (forced air) removal removes air from the chamber by introducing steam to force the air out through the drain line system. The vacuum pump is simultaneously operated to assist in evacuating the air. Gravity (forced air) removal is designed for liquid loads in vented containers. Exposure includes time or optional F_0 based modes. Drying can be accomplished by fast exhaust, deep vacuum or vacuum pulsing. Pre-vacuum and post-vacuum pulses are programmable. Cycles to process liquids in vented containers are also possible using slower rated exhaust to minimize liquid loss.
- **Cycle CA** is an optional cycle designed to process liquid products in vented containers that require cooling after sterilization. Sterile air over-pressure prevents liquid from boiling during the cooling phase and minimizes liquid loss. Jacket steam is vented during cooling but cooling water is not circulated in the jacket. The sterilization process CA includes the process B cycle. CA process cooling may precede or follow a vacuum drying or pulse drying phase. This cycle is more efficient than the standard slow exhaust B cycle.

- **Cycle C** is an optional cycle designed to efficiently process liquid products packaged in either vented or non-vented (rigid) containers that require fast cooling during the post-conditioning phase. The cooling phase is designed to cool the chamber by flowing cooling water through the jacket with simultaneous air overpressurization in the chamber to minimize liquid loss. This process cools the load and prevents the product from boiling. Sterilizers with C process include the Process B cycle. This cycle is more efficient than the CA Cycle.
- **Leak test cycle** is a standard cycle provided for verification of the chamber's integrity. Cycle parameters are user-configurable. Default values for the leak rate test may be used, or specific leak rate test parameters may be configured in accordance with the customer's Standard Operating Procedure (SOP).
- **Effluent Decontamination cycle** is used in situations where the chamber condensate may be contaminated and cannot be drained before sterilization is complete. During this cycle, steam is introduced into the chamber through the drain line, and all effluent is sterilized before discharge. Additionally the preconditioning phase uses one vacuum pulse that is pulled through a dedicated 0.2 micron decontamination filter. The filter is automatically sterilized during the cycle. The decontamination cycle includes the Process B cycle.

SAFETY FEATURES

Emergency stop button, located on non-sterile end (and sterile end if double door unit) of sterilizer, returns valves to safe condition and halts cycle processing when pressed. Once pressed, the operator chooses to either abort or continue cycle operation.

Security access codes provide restricted access of unauthorized users to critical operational modes. Five access levels are available:

1. Operator level password (**level 1**) permits the user to select a cycle, start a cycle, acknowledge alarms, view cycle parameters and manually print reports;
2. Supervisor level password (**level 2**), in addition to level 1, permits the user to edit cycle parameters, edit the Proportional Integral Derivative (PID) parameters;
3. Calibrator level password (**level 3**), in addition to level 2, permits the user to calibrate instruments;
4. Service level password (**level 4**), in addition to level 3, permits the user to view inputs, view system diagnosis, activate/deactivate outputs, edit common settings and change date/time;
5. Administrator level password (**level 5**), in addition to level 4, permits the user to configure user names and edit passwords.

Tank back-up for the door gasket(s) is optionally available with C cycle, CA cycle, decontamination cycle, and bio-seal installations. This feature ensures the door remains sealed in case of air utility or power loss.

Door sensing device automatically stops if an obstruction is detected while the door is closing.

Door interlock (double door units only) allows only one door to be opened at a time, and during processing, prevents either door from being opened until the sterilization cycle is complete. The door opening/closing sequencing logic is configurable.

Pressure relief devices on the chamber and jacket limit the amount of pressure buildup so the rated pressure of the vessel is not exceeded.

Steam valve interlock prevents the steam valve from opening when the door is open.

Pressure interlock prevents the user from opening the door when the unit is above/below atmospheric pressure. Chamber float switch alarms to let operator know water is in the chamber.

Chamber float switch alarms to let the operator know water is potentially in the chamber.

CONSTRUCTION

Pressure Vessel

The standard chamber pressure vessel is a fully jacketed-type that meets ASME or PED pressure vessel codes. The pressure vessel inner shell (chamber) and outer shell (jacket) are designed to withstand operating pressures from full vacuum to 3.1 bar (45 psig). The chamber is constructed of AISI 316L stainless steel. The chamber interior is glass-beaded to a fine finish.

The 304 stainless-steel jacket is insulated with mineral wool with aluminum foil backing.

The steam-supply openings, inside the chamber, are shielded by a baffle to evenly distribute the steam as it enters the chamber. A 63 mm (2-1/2") chamber penetration with tri-clamp connections is provided for validation purposes.

Chamber Door(s)

The door is constructed of AISI 316L stainless steel and insulated with mineral wool to reduce surface temperature of the stainless-steel door cover. The door is equipped with a one-piece, silicone sealing gasket. The gasket is activated by steam pressure, and retracted by pulling a vacuum.

Fascia Panel(s)

The sterilizer's framework is enclosed by a front fascia panel, located on the non-sterile end. If the sterilizer is equipped with double doors, a back fascia panel is provided. Fascia panels are constructed of AISI 304 stainless steel with No.3 brush finish.

Vacuum System

A two-stage, water ring seal-type pump is used for evacuating the sterilizer chamber. The pump can pull to a 3 psia vacuum in five minutes utilizing 20°C (68°F) cooling water.

Air Filter

A 0.2 mm hydrophobic bacteria-retentive filter is used for chamber pressure equalization.

Piping

The process piping for steam and sterile air to chamber, and drain piping up to the first valve is constructed of AISI 316L

stainless steel. All piping connections terminate within the confines of the sterilizer and are accessible from the right side of the sterilizer, when facing non-sterile (operating) end. All stainless-steel piping utilizes welded construction, tri-clamp or threaded fittings. Other piping connections are screwed or compressed fittings. Bronze air-actuated valves are used to control the process. Optional stainless-steel valves are available for clean steam. Brass and copper or stainless-steel piping and components are used for utility water and non-process steam lines.

MOUNTING ARRANGEMENT

The sterilizer is designed for freestanding or recessed mounting through one or two walls. All sterilizer components are integrally mounted within the sterilizer confines of the footprints. Each sterilizer is equipped with adjustable leveling legs. Floor mounting or pit mounting is available.

OPTIONAL FEATURES

Operator interface control function – both sides (double door units only) permits operator to view, select and initiate cycles from the operator interface panel located on the sterilizer's non-operating end.

Two-piece construction

With two-piece construction, a sterilizer is designed and manufactured in a manner that facilitates separation of the service frame section from the chamber frame section. The sterilizer is shipped in one crate with the two sections bolted together. Once uncrated at the job site, the sections are easily unbolted and installed accordingly. Two crate shipment is also available. Please specify when ordering.

Mirror construction reverses the standard positioning of the sterilizer chamber and service area. With mirror construction, as viewed from the operating end, the sterilizer chamber is relocated to the right side and the service side is relocated to the left side. The standard configuration is chamber on left and service on the right side (as viewed from the operating side).

Air differential seal (sterile side) is fabricated from AISI 304 stainless steel, and is affixed to the load or unload end. Adjustable interface panels are provided at the top, bottom and sides, with a silicone gasket to seal the unit system to the facility structure. This seal is designed to maintain room air differential pressure and can be used with some BL-3 applications.

BioSeal (BL-3/BL-4 environment) is located on the sterilizer's load end to prevent passage of airborne microorganisms from one classified area to another. The seal is used most often in Biolevel 3 (BL-3) and Biolevel 4 (BL-4) applications. The seal is constructed of AISI 304 stainless steel that is seal welded to the chamber. A 304 stainless-steel wall flange and rubber gasket with bolted clamp assembly is also provided to complete the seal. As an option, the seal can be leak tested with helium or pressure decay tested with air.

Side/Back enclosure panels are installed on the right and/or left side or back of the sterilizer framework as specified. The side panels are constructed from AISI 304 stainless steel.

Backflow preventer replaces the standard check valves on the facility's water supply line to prevent backflow. This is required per code in some areas.

Seismic restraints are provided, along with an anchoring report in conformance with the current seismic Zone 4 requirements of the California building code.

Utility shutoff valves include manual valves on incoming utilities for isolation during maintenance.

Cooling water saving package (closed loop cooling) is designed to utilize a Customer-supplied closed loop water (tower or chilled) utility to minimize the consumption of the facility's supply water. This is done by 1) cooling and recirculating the initial charge of vacuum pump seal water through a heat exchanger and back to the break tank, and 2) cooling the chamber effluents with a heat exchanger.

Cooling water recycling package is designed to recirculate facility-supplied water to cool the vacuum pump. To maintain vacuum efficiency, the control system monitors and determines when to add water. Note that this option can significantly reduce the amount water supplied by the facility; and does not require a closed loop chilled water utility.

Probe for load temperature. One product load probe is provided. The load probe can be placed in the product during a sterilization cycle for controlling and monitoring purposes. This option is used to monitor liquid loads and is used for F_0 functionality.

Feed-through assembly for 36 thermocouples provides one 36 thermocouple feed through assembly interfacing with tri-clamp chamber penetration enabling the insertion of thermocouples into the chamber.

Steam Pressure Reducing Valve (PRV) uses a non-sanitary PRV to limit the incoming steam pressure to the pressure vessel design requirements (if steam pressure is higher than 3.1 bar (45 psig)).

Spare parts kit containing selected mechanical and electrical components is provided. The kit includes a two year supply (with normal maintenance and operation of the sterilizer) of these selected items.

Split Crating. As standard with two-piece construction option, the sterilizer will be shipped in one crate with two sections bolted together. This option provides shipping in two separate wooden crates to facilitate air shipping, storage, or other rigging and transportation requirements.

NOTE: This crate is not designed for outside storage.

Chamber Polish $Ra < 0.6 \mu m$ (25 μ -in) Instead of standard glass bead satin finish, inner chamber walls and doors are mechanically polished to minimum $Ra 0.6 \mu m$ or better. All chamber welds are ground smooth with this option.

Ethernet Connection. This option allows the user to monitor all real time process data via an Ethernet connection. User to provide all download software.

NOTE: This option does not provide configuration of data communication. Specific communication format can be provided if agreed and priced separately.

Separate Wall Mounted Control Enclosures. Option provides means to install main control separate from unit. Enclosures are to be wall mounted. Cabling between unit and enclosures is 10 m (~30 ft). This option saves 330 mm (13") of width off main unit. Separate wall mounted enclosures option provides following components:

- Wall mountable 304 SS cabinet IP 55 (NEMA 12) rated.
- Operator side includes operator interface screen, alarm horn, on/off key switch, door open/close buttons, printer and e-stop.
- Optional double door non-operating side includes, 304 SS cabinet with indicator light, alarm light, door open/close buttons, and e-stop. With panel option the indicator lights are replaced with an operator interface screen for display and starting cycles.

Fascia Mounted Integral Control This option provides the main control panel on the front fascia of the unit. This option saves 330 mm (13") of width off the main unit.

This option provides the following components:

- 304 SS enclosure mounted on the front fascia of the unit. The enclosure is not rated to any protection standard. The enclosure will protrude from the fascia panel.
- Operator side includes operator interface screen, alarm horn, on/off key switch, door open/close buttons, printer and e-stop.
- Optional double door non-operating side includes 304 SS enclosure mounted on the front fascia with indicator light, alarm light, door open/close buttons, and e-stop. With panel option indicator lights are replaced with an operator interface screen for display and starting cycles.

Plant Steam Condensate Return (Jacket) Steam condensate pipe from jacket is configured to interface with customer supplied condensate collection system. The option includes return piping to the edge of the skid and a steam trap.

Self Cleaning Drain Strainer The drain line is fitted with a drain strainer with valve on the strainer clean-out screen. During fast exhaust the strainer is cleaned of debris using steam flow.

Rub Rails Rub rails are fitted to the sides of the chamber to guide carts and to protect the sides of the chamber. This is recommended when chamber tracks are not provided.

Stainless-Steel Steam Valve for Clean Steam The standard bronze steam valves are replaced with stainless-steel steam valves. This allows the use of clean steam.

DOCUMENTATION OPTIONS

FAT Procedures and Results. The package is produced to describe the tests applicable to the unit with its options and features. The package adds the following material to the standard package:

- Specification reference source
- Unambiguous step-by-step procedures or protocols (step/action) for each test
- Individual acceptance criteria for each step

Electronic version of blank forms are provided in MS Word format upon signing a confidentiality agreement.

Additional Copy of User's Manual. This option provides an additional copy of the User's Manual. Specify the number of manuals required.

Customer Attended FAT. This option includes factory time for customer to witness FAT. Price is a per day rate. Price does not include travel expenses. This option adds one week to the quoted ship date.

ACCESSORIES

Loading cart is 316L electro-polished stainless steel with casters and removable shelves. Shelf spacing is in 150 mm (6") increments. Two carts per load (half length) are required for chambers longer than 73" (1850 mm).

Transfer trolley (floor-mounted units only) is 304 stainless steel with two fixed front wheels and two locking swivel rear wheels. It features one locking mechanism to secure the transfer carriage to the chamber, and another to secure the cart to the carriage.

Wire or perforated shelves for the loading cart. Adjustable shelves are added to accommodate various loads.

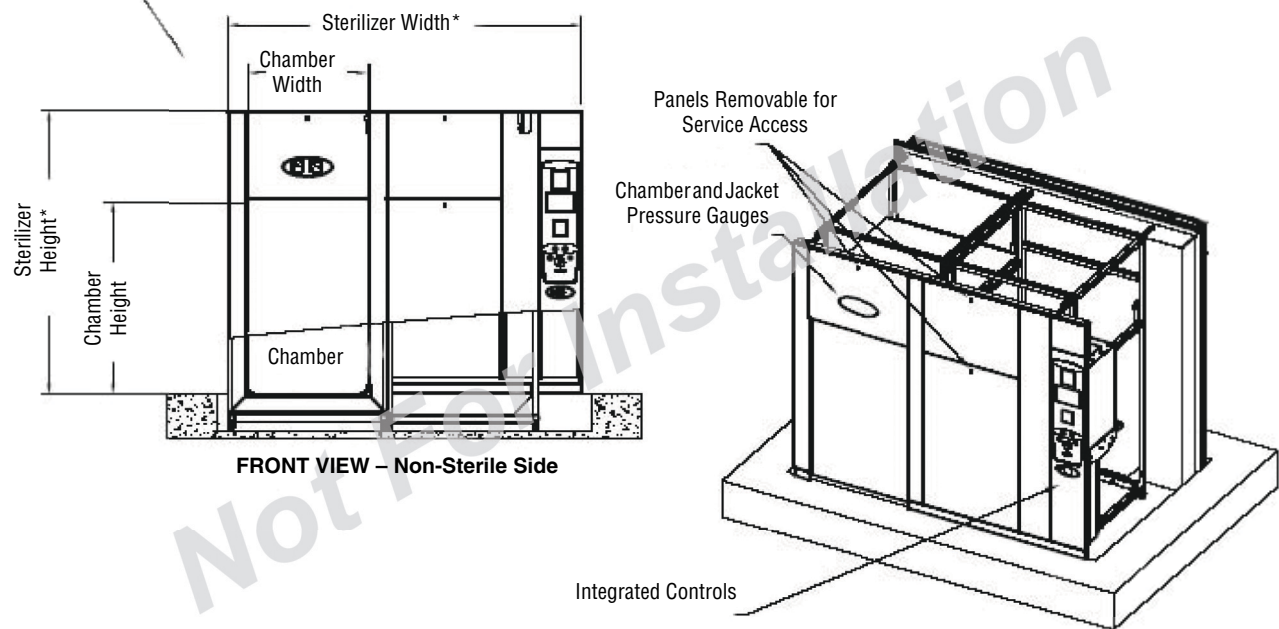
Chamber tracks (located on the floor of the sterilizer chamber) are designed and positioned to allow easier loading of the loading cart. Tracks are sized and fixed for STERIS carts. Tracks can also be customized for custom specified carts.

PREVENTIVE MAINTENANCE

A global network of skilled service specialists can provide periodic inspections and adjustments to help assure low-cost peak performance. STERIS representatives can provide information regarding annual maintenance agreements.

Request Equipment Drawings for Installation Details¹

View Shown without Optional
Air Differential Seal or BioSeal



* Refer to equipment drawing for planning details.

¹Equipment drawing 329341 is for pit mounting; drawing 329342 is for floor mounting.

Table 1. Life Sciences Research (LSR) Steam Sterilizer Chamber Dimensions

LSR Model Number*	Internal Chamber Width and Height W x H – mm (inches)	Internal Chamber Depth
LSR 91521	950 x 1550 mm (37 x 61")	2150 mm (85")
LSR 91821	950 x 1850 mm (37 x 73")	2150 mm (85")
LSR 92121	950 x 2150 mm (37 x 85")	2150 mm (85")
LSR 121821	1250 x 1550 mm (49 x 61")	2150 mm (85")
LSR 122121	1250 x 2150 mm (49 x 85")	2150 mm (85")
LSR 152121	1550 x 2150 mm (51 x 85")	2150 mm (85")
LSR 182121	1850 x 2150 mm (72 x 85")	2150 mm (85")

*Additional sizes are available, please consult your local sales representative for further details.
See equipment drawings 329341 (pit mounting) and 329342 (floor mounting) for load dimensions.

Note: Refer to equipment and installation drawings 329341 (pit mounting) and 329342 (floor mounting) for Utility Usage Summary.

Key to LSR Model Numbers	
9	950 mm (37")
12	1250 mm (49")
15	1550 mm (61")
18	1850 mm (73")
21	2150 mm (85")
24	2450 mm (96")

Example: LSR Chamber Size 12 21 21

Internal Chamber Width = 1250 mm (49")

Internal Chamber Height = 2150 mm (85")

Internal Chamber Depth = 2150 mm (85")

UTILITY REQUIREMENTS¹

Steam

NPT male 2.8 ±0.3 bar
(40 ±5 psig), 97-100% vapor quality.

Drain

2-1/2" ODT gravity discharge.

Feed Water (Facility Supplied)

NPT male; 1-3 bar (14-45 psig);
20°C (68°F) max; 7 dH
(125 ppm CaCO₃) max. hardness.

Water is used for vacuum pump sealing, drain cooling and jacket cooling.

Closed Loop Cooling Water (Optional)

NPT male; 3-6 bar (44-87 psig);
20°C (68°F) max.
ΔT is approximately 15°C (59°F)
ΔP is approximately 1 bar (15 psig)
Water is used for cooling of vacuum pump and drain.
Cooling water savings package must be purchased.

Compressed Air²

NPT male; 5-8 bar (73-120 psig).

Chamber Safety Relief

NPT male; 3.1 bar (45 psig) max.

Jacket Safety Relief

NPT male; 3.1 bar (45 psig) max.

Electricity - Sterilizer

208 V, 60 Hz, 3-Phase
240 V, 60 Hz, 3-Phase
480 V, 60 Hz, 3-Phase
600 V, 60 Hz, 3-Phase
400 V, 50 Hz, 3-Phase

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

NOTES

1. Utility connection sizes and flow rates are dependent on the chamber size selected. Refer to STERIS equipment and installation drawings 329341 (pit mounting) and 329342 (floor mounting) for details.
2. Dry, oil free, compressed air is required.
3. The drain line should have a 51 mm (2") air-gap to prevent backflow.
4. The pipe sizes shown indicate terminal outlets only. Building service lines, not provided by STERIS, must supply the specified pressures and flow rates.
5. A non-fused, pad-lockable disconnect switch is provided with the sterilizer. A fused disconnect next to the unit is recommended per local codes.[†]
6. Recommended drain is 305 x 305 x 299 mm (12 x 12 x 11-3/4") floor sink with 102 mm (4") drain pipe. Top plate must have 76 mm (3") hole centered over drain. Drain pipe should be suitable for 60°C (140°F). High temperature drain piping is recommended.
7. Pit should have 51 x 51 x 5 mm (2 x 2 x 3/16") stainless-steel angle around the perimeter.[†]
8. BioSeal shall have stainless-steel in-beds installed in the wall for welded angle frame assembly.[†]
9. Additional pipes or structures should not be placed in the service area. STERIS must be consulted for this situation.

[†] Fused disconnect, BioSeal wall in-beds, and pit angle frame are not supplied or installed by STERIS.

For Further Information, contact:



STERIS Corporation
5960 Heisley Road
Mentor, OH 44060-1834 • USA
440-354-2600 • 800-444-9009
www.STERISLifeSciences.com