

APPLICATION

The AMSCO 430LS Laboratory Medium Steam Sterilizer is offered in a prevacuum configuration and is designed for fast, efficient sterilization of heat- and moisture-stable materials in scientific applications. Each is equipped with prevacuum, gravity, liquid, leak test, and daily air removal (Bowie-Dick) test cycles.

All configurations include choice of a single or double door.

DESCRIPTION

The AMSCO 430LS Laboratory Medium Steam Sterilizer is equipped with the latest features in both state-of-the-art technology and ease of use.

Primary Product Features

Interior Chamber Dimensions

- 26 x 26 x 39" (660 x 660 x 991 mm) – 430 L capacity
- 26 x 26 x 49" (660 x 660 x 1245 mm) – 540 L capacity
- 26 x 26 x 61" (660 x 660 x 1549 mm) – 675 L capacity

Vertical-sliding door with quiet, motor-driven cable and pulley mechanism. The door travels down vertically to open and is controlled from the touch screen.

Allen-Bradley MicroLogix™ Control System with enhanced functionality and user-friendly Allen-Bradley PanelView Plus™ 7 700 interface screen.*

- Touch-sensitive screen with 18-bit color graphic display
- Display features 640 x 480 resolution color-active matrix



AMSCO 430LS
(Typical - details may vary.)

Selections Checked Below Apply To This Equipment

SIZE

- 26 x 26 x 39" (660 x 660 x 991 mm)
- 26 x 26 x 49" (660 x 660 x 1245 mm)
- 26 x 26 x 61" (660 x 660 x 1549 mm)

STEAM SOURCE

- Building Steam
- Stand Alone Electric Steam Generator (Provided by STERIS)
- Integral Indirect Clean Steam Generator (Single Tube)⁶
- ESG† Carbon Steel (45kw)
- ESG Stainless Steel (45kw)
- ESG Carbon Steel (60 or 65kw)⁵

ELECTRIC SERVICE

- 208/240 VAC, 60 Hz, 3-Phase
- 480 VAC, 60 Hz, 3-Phase
- 400 VAC, 50 Hz, 3-Phase (International)
- 600 VAC, 60 Hz, 3-Phase (Canada Only)

DOOR CONFIGURATION⁴

- Single Door
 - Cabinet Enclosed/Freestanding
 - Recessed
- Double Door¹
 - Recessed through One Wall
 - Recessed through Two Walls

ACCESSORIES

- Loading Car
- Transfer Carriage
- Loading Car, Transfer Carriage, and Track Assembly
 - Single Door Double Door
- Rack and Shelves (39" [991 mm] Only)
- Seismic Tie-Down Kit²
- Air Compressor, Portable, 115 Vac

OPTIONS

- Liquid Air Cooling (with Vacuum)
- Effluent Decontamination Cycle (with Vacuum)
- Air Detector System
- Air Differential Seal (Double Door Only)
 - Sterile side Non-Sterile side
- Bioseal (Double Door Only)^{2,3,4}
 - Sterile side Non-Sterile side
- Pure Steam Piping to Chamber³
- STERI-GREEN® Water Conservation System
- STERI-GREEN PLUS® Water Conservation System (Chilled water required)
- Dry Contacts
- Closed Loop Chilled Water System (Drain Only)
- Drain Line Reference Probe
- RTD Load Probe(s)
 - One Probe Two Probes
- 0.2 Micron Bacterial Retentive Filter
- Right Hand Piping
- Backflow Preventer

- Additional Chamber Penetrations
 - Additional: 1" penetration
 - Additional: one 1" and one 3" penetration
- Stainless-Steel Back Panel
- Printer on Both Ends
- Auto Flush System for Electric Steam Generator

Notes:

1. SSQ is required for double door cabinet enclosed units with integral generators.
2. Seismic Tie-Down Kit based on CA Requirements. Note that units with Bioseal require a special seismic kit through SSQ.
3. Compressed air required for Single Door and Double Door sterilizers with integral electric steam generator, units with air differential or bioseal, units with Pure Steam Piping option or integral indirect steam generator units.
4. Special Cabinet required for units with Bioseal, RH piping, or 61" units with Electric Steam Generator.
5. 60 or 65kw ESG's are recommended for use with 49" and 61" sterilizers.
6. Integral indirect clean steam generator requires field certification for UL/CSA.

Note: CE marking is not available for 65kw ESG's.

† ESG - Electric Steam Generator

*CRN available upon request

Item _____

Location(s) _____

Noise level

- Noise level is based on the vacuum pump, 74DbA at 24"Hg vacuum
- Display is designed with emphasis on human factors and user recognizable symbols.

Cycle Programming and Flash Memory

- 20 cycles may be individually selected and programmed
- Help screens for control operation
- Program permanently stored in flash memory
- Variables permanently stored in flash memory

STANDARDS

Each sterilizer meets applicable requirements of the following listings and standards, and carries the appropriate symbols.

- **Governing Directives for Affixing the CE Mark:**
 - » Low-Voltage Directive (2014/35/EU)
 - » EMC Directive (2014/30/EU)
 - » Machinery Directive (2006/42/EEC)
- **Pressure Equipment Directive (PED):** 97/23/EC.
- **UL/EN/CSA 61010-1:** Safety Requirements for Electrical Equipment for Measurement, Control, and Laboratory Use Part 1: General Requirements
- **UL/EN/CSA 61010-2-040:** Safety Requirements For Electrical Equipment For Measurement, Control, And Laboratory Use, Part 2-040: Particular Requirements For Sterilizers And Washer-Disinfectors Used To Treat Medical Materials
- **ASME Code, Section VIII, Division 1** for unfired pressure vessels. The pressure vessel is so stamped; ASME Form U-1 is furnished. The shell and door are constructed to withstand a working pressure of 45 psig (3.1 bar).

FEATURES

26 x 26" (660 x 660 mm) chamber cross-section is sized to allow for efficient, high-volume processing.

Vertical-sliding power door is controlled from the touch screen display. The door slides down vertically to open. Door is propelled by a cable and pulley driven by an electric motor.

Resistive Thermal Detectors (RTD) are installed for sterilizer temperature control. The chamber drain line RTD senses and controls temperature variations within the sterilizer chamber. A jacket RTD provides temperature control within the jacket space. These RTD signals, converted into electrical impulses, provide accurate control inputs and readouts throughout the entire cycle.

Electronic water saving control includes an RTD to control amount of water used in condensing exhausted chamber steam. See *Automatic Drain Effluent Cooling* on page 4

Software calibration is performed in the service mode, accessible through the touch screen displays, and accomplished using external or internal temperature and pressure sources. The control system provides printed record of all calibration data for verification to current readings.

Automatic utilities startup/shutdown permits slow cooling of the entire vessel and load. Shutdown may be programmed to activate at the end of any designated cycle or time of day. When activated, the control system automatically shuts off all utility valves, conserving steam and water usage. Sterilizer utilities can be restarted either by programmed time or manual operation. A different shutdown and restart time can be programmed for each day.

Steam purge feature is provided to assist in air removal and to preheat the load.

Insulation, one-inch thick, asbestos-free spin-glass (rated at 500 °F [260 °C] continuous) encompasses the exterior of the sterilizer vessel and is sealed in an oil and water resistant outer jacket.

Vacuum pump supplied on all units to effectively pull chamber to specified vacuum levels and reduce water consumption.

Lighted DIN connectors are installed on all steam, water, and exhaust valves for reliability and ease of maintenance.

Visible pressure gauges for chamber and jacket pressure are mounted on the control panel and are visible to the operator. For double door units, the gauges reside on both control panels (operating and non-operating ends).

PROCESSING CYCLES

This scientific sterilizer is factory programmed with the following cycles:

- **Prevacuum Cycle:** for efficient, high-volume sterilization of porous, heat- and moisture-stable materials at 100°C to 141°C (212°F to 285°F). The prevacuum cycle uses a mechanical air-evacuation system.
- **Gravity Cycle:** for the sterilization of heat- and moisture-stable goods at 100°C to 141°C (212°F to 285°F) and decontamination of bagged basic laboratory wastes. The gravity cycle uses the gravity air-displacement principle.
- **Liquid Cycle:** for the sterilization of liquids and media in vented borosilicate glass or metal containers at 100°C to 141°C (212°F to 285°F). Liquid cycle uses the optimal solution cooling feature during the exhaust (cooling) phase to control the exhaust rate.
- **USP 660 Cycle (standard)** developed to assist meeting the requirements of USP 660 sterilization test cycle for glassware. Load probe option is recommended when using the USP cycle.
- **Continuous Cycle (standard)** This cycle allows for up to 9,999 cycles to be run consecutively without the need of an operator. Cycle parameters can be set, along with the amount of time to lapse in between cycles.
- **Waste Bag Cycle (standard)** comes configured with cycle parameters shown to be effective when processing lab waste in autoclavable bags. Through air removal assistance and a controlled exhaust, the internal temperature is increased more effectively and faster, while minimizing boil over of any liquids present. Parameters may need to be adjusted based on specific loads. Bags should not be completely sealed.
- **ATF 1 and ATF 2 Cycles (Alternating Tangential Flow)** are designed to sterilize the XCell™ ATF system. These can be used for other purposes that require rates and hold times in the pre-conditioning pulses and a cool down in exhaust by temperature.
- **Isothermal Cycle (Optional)** provided only on Isothermal sterilizer for processing of heat sensitive and heat-coagulable solutions in vented borosilicate glass or metal containers at 78°C to 110°C (170°F to 230°F). Isothermal cycle utilizes steam to enhance temperature control and prevent layering of steam.
- **Healthcare Cycles** - The LS Series sterilizers can be programmed to reproduce cycles that are used for healthcare applications, however, these sterilizers do not have FDA clearance and cannot be used for patient treatment applications

1. XCell™ ATF system is a trademark of Repligen.

TEST CYCLES

- **Vacuum Leak Test** is used for testing the vacuum integrity of sterilizer piping. Sterilizer chamber must be empty while running this test cycle. All temperatures and timing are preprogrammed and cannot be adjusted.
- **Daily Air Removal Test Cycle:** used to conduct a Bowie-Dick test on the sterilizer. Recommended load is a Dart® Testing Apparatus to Determine the Effectiveness of Removing Air from a Chamber, or a properly prepared Bowie-Dick test pack. Sterilize exposure temperature: 132°C; sterilize exposure time: 3-1/2 minutes; dry time: 1 minute.

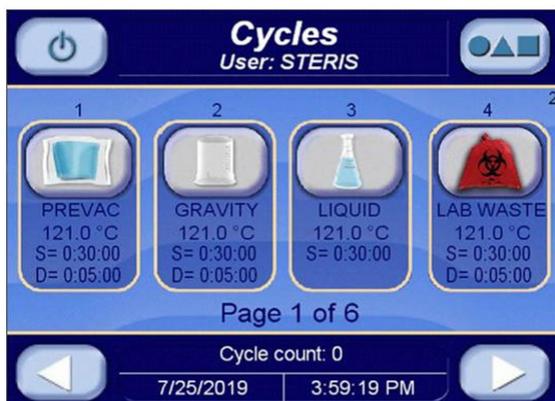
OPTIONAL CYCLES

- **Liquid Air Cool Cycle** provides water to the jacket, and air pressure to the chamber to improve exhaust time for liquid loads, and to reduce boil over. Compressed air is required for this cycle.
- **Effluent Decontamination Cycle** is used for the processing of contaminated biohazardous laboratory waste (BL-3 and BL-4). The condensate produced during the processing cycle is decontaminated before discharge to the floor drain. Steam is admitted through bottom of sterilizer chamber and exhausted out the top side of the vessel. During the purge and vacuum pulses, all purge and exhaust gases are vented through a 0.2 micron bacterial retentive filter. Filter housing is steam jacketed to prevent wetting of filter membrane. Available with fast exhaust or optimal solution cooling (slow exhaust) exhaust types. User is responsible for development of process parameters. Control display screen provides number of hours of filter use. Compressed air is required for this cycle

CONTROL SYSTEM

Design Features

Together, the Allen-Bradley MicroLogix™ PLC control and PanelView Plus™ 7 700 display, monitor and control all sterilizer operations and functions. Control system is factory-programmed with standard sterilizing cycles, each adjustable to meet specific processing requirements. All control configuring is performed through touch screen displays.



Typical Cycle Menu Display

Cycle values and operating features may be adjusted and verified prior to cycle operation. Once cycle is started, cycles and cycle values cannot be changed until cycle is complete. On completion of cycle, timers reset to the previously selected values, eliminating the need to reset values between repeated cycles. If chamber temperature drops below the under temperature setting during the exposure phase, timer can be set to stop and automatically reset or resume once normal operating temperature is reached.

Critical control system components are housed within a sealed compartment to protect components from moisture and heat generated during sterilization process.

The control system is provided with features such as audit trail, password management and electronic signatures, which can facilitate compliance to 21 CFR Part 11 (Code of Federal Regulations Title 21)

Operator interface control panel, consisting of touch screen is located on operating (load or nonsterile) end of sterilizer. If the sterilizer is equipped with double doors, an additional touch screen is provided on the non-operating (unload or sterile) end.

- **Touch-Sensitive Screen** features a color active matrix 18-bit graphics display. All sterilizer functions, including cycle initiation and cycle configuration, are operated by pressing the touch-sensitive areas on the display, referred to as buttons. Display indicates appropriate control buttons, operator prompts and status messages necessary to assist in sterilizer operation. All displayed messages are complete phrases with no codes to be cross-referenced. Display also indicates any abnormal conditions that may exist either in or out of a cycle.
- **Thermal printer** - a high resolution (8 dots per mm) printer. It is fast and quiet, printing at 25 lines per minute on industrial grade thermal paper. The device provides an easy-to-read printed record of all pertinent cycle data on 2.25" (57 mm) wide paper. Data is automatically printed at the beginning and end of each cycle and at transition points during the cycle. Three paper tape rolls are furnished with each unit. Printouts have a guaranteed lifetime of 25 years and are resistant from exposure to steam, alcohol, UV and visible light, oil, heat and water.
- **Non-operating end (NOE) control panel** (equipped on double-door sterilizers only) includes a touch-sensitive screen similar to the operating end screen. Preprogrammed cycles can be started from the NOE control panel. Display concurrently shows the same information as the operating end screen display.
- **Cycle configuration** is performed by accessing the **change values** menu on either end of a double door sterilizer. Utility shutdown parameters can only be changed on the OE display. In addition to adjustment of cycle values, the following operating parameters can also be changed through the change values menu:

- » **Time Display and Printout Units** in standard AM/PM or 24-hour military (MIL) time.
- » **Selectable Cycle Name** permits user to name each cycle with any combination of letters, numbers, blank spaces, and underscores, up to eight characters long.
- » **Security access code** is required to enter the operating mode (running cycles), supervisor mode (changing values), and service mode. Operating the sterilizer or accessing change values menu causes display to request the entry of an access code. If access code is not properly entered, display returns to the standby screen, denying user access to the sterilizer or programming. Access to the sterilizer can be limited to 12 operators, each with a different access code.
- » **Alarm tones** The end of cycle and alarm tones are adjustable from low, medium and high. The end of cycle tone can also be set off.
- » **Temperature Display and Printout Units** in Celsius (°C) or Fahrenheit (°F). Temperature is set, displayed, controlled, and printed to the nearest 0.1°. Recalibration is not required when changing temperature units from °C to °F and vice versa.

- » **Pressure/Vacuum Display and Printout Units** in psi/In/Hg, Bar (Gauge and Absolute). Recalibration is not required when changing pressure units.

Mobile and PC Messaging (Standard)

This is a standard feature on the control that allows the user to receive text messages or emails alerts regarding the status of the autoclave. The operator can choose from a list of # possible alerts from which to be notified. An ethernet connection is required.

SCADA Ready Control Interface (Standard)

If requested, STERIS can provide the user the information to allow communication between the autoclave and the Building Management System. An ethernet connection is required.

Printer Data Storage (Standard)

All printer data is saved internally and can be retrieved and viewed on the display screen, exported to a USB drive (port located on fascia panel) or emailed to the User.

Cycle usage (Standard)

Utilization of the sterilizer can be monitored for each User, data can be exported via an Ethernet or the USB port located on the fascia panel.

SAFETY FEATURES

Control lockout switch, located on the chamber door, senses when the door seal is energized and tight against the door. The control prevents the cycle from starting until the limit switch signal is received. If the control loses the appropriate signal during the cycle, the alarm activates, the cycle aborts, and the chamber safely vents with a controlled exhaust.

Chamber float switch activates the alarm, aborts the cycle, and safely vents the chamber with a controlled exhaust if excessive condensate is detected in the vessel chamber.

Door interlocks (double door units only) allow only one door to be opened at a time and, during processing, prevent the non-operating end (NOE) door from being opened until a satisfactory cycle is complete. If a cycle is aborted, the NOE door cannot be opened. The use of this feature may affect the door gaskets life expectancy unless an air differential or bio seal is provided.

Emergency stop button is included on all sterilizers. A key is required to release the emergency stop (once pushed) before the unit can return to normal operation.

Pressure relief valve limits the amount of pressure buildup so the rated pressure in the vessel is not exceeded.

CONSTRUCTION

Shell Assembly

Two fabricated Type 316L stainless-steel shells, welded one within the other, form the sterilizer vessel. Type 316L stainless-steel end frame(s) is welded to the door end. On a single door unit, the back of the chamber is fitted with a welded 316L stainless-steel dished head.

The sterilizer vessel is ASME and PED rated at 45 psig (3.1 bar) and insulated. The vessel includes one 3/4"-NPT access port for Customer use.

The steam-supply opening inside the chamber is shielded by a stainless-steel baffle.

Chamber Door(s)

The door is constructed of stainless steel. A layer of insulation is placed between the door and its outer stainless-steel cover to minimize chamber heat transfer through the door to surfaces touched by an operator.

During cycle operation, the door is sealed by a steam-activated door seal. Door seal is constructed of a special long-life rubber compound. When the sterilizer cycle is complete, the seal

retracts under vacuum into a machined groove in the sterilizer end frame.

A proximity switch is used by the control to determine if the door is closed. An additional seal pressure switch prevents inadvertent cycle initiation if the door is not sealed.

The door assembly is equipped with a mechanical locking mechanism that assures the door cannot be opened, as long as the seal is intact and energized, and more than 2 psi (0.14 bar) pressure is in the chamber. Door interlocks on double door sterilizers can be programmed to prevent inadvertent opening of door(s). Access code is required to override door interlocks.

The sterilizer door is fitted with a stainless-steel panel that insulates the operator from the chamber end ring, reducing the chance of accidental contact with a hot metal surface.

Chamber Drain System

Drain system is designed to prevent pollutants from entering the sterilizer. An optional backflow preventer is available.

An automatic condensing system, consisting of a stainless-steel plate-type condenser, converts chamber steam to condensate, and disposes condensate to waste. Cooling water flow is regulated by waste line RTD to minimize water usage. Water supply shutoff valve is located in recessed area of unit.

Automatic Drain Effluent Cooling

The piping system to the drain provides automatic condensing of chamber steam and disposal of condensate to waste.

Cooling water is added to ensure discharge temperature is discharged at or below 60°C (140°F). A separate resistance temperature detector (RTD) is included to limit the volume of water to only the amount required to achieve target temperature, thus conserving water.

Vacuum System

The vacuum pump reduces chamber pressure during prevacuum and post-drying phases. Air is drawn from the chamber through the vacuum system. Following the dry phase, chamber vacuum is relieved to atmospheric pressure by admitting air through a bacteria-retentive filter.

Steam Source

The sterilizer can receive steam from an integral electric steam generator (option discussed below); but is also piped, valved, and trapped to receive facility-supplied steam delivered at 50 to 80 psig (3.5 to 5.6 bar) dynamic. Steam piping is constructed of brass and includes a shutoff valve, steam strainer, steam trap, and pressure regulator.

Steam feeds from the jacket to the chamber. A check valve is added between the jacket and chamber on sterilizers with decontamination cycle option.

Optional Integral Electric Steam Generator

A 45 kW steam generator, manufactured of carbon or stainless steel, is available. To reduce cycle time, a 60 or 65kW carbon steel steam generator is recommended for 49" and 61" units. When this option is selected an electric steam generator is positioned behind or to the side of the sterilizer. Additional floor space, either at the rear of the sterilizer (single door chamber), or at the side (double door chamber) is required. Additional utility requirements are also needed. Refer to the appropriate equipment drawings if an integral electric steam generator is required.

Integral Indirect Clean Steam Generator

Utilizes the Customer's facility steam (minimum 75 psig [517 kPa]) and high quality water (minimum specific resistivity of 1 MΩ·cm) to supply pure steam to the steam sterilizer. The generator system is integrally mounted to the sterilizer framework and is automatically operated by the sterilizer electronic control system. The clean steam-to-chamber piping option must also be selected. Refer to the appropriate equipment drawings if an integral indirect clean steam generator is required. (See tech data SD589 for further details).

Piping

All piping connections terminate within the confines of the sterilizer, and are accessible from the front and left side of the unit.

- **Solenoid valves** with DIN connectors simplify sterilizer piping and can be serviced individually.
- **Manual shutoff valves** are pressure rated at 125 psig (8.62 bar) for saturated steam. Valve handles are low-heat conducting. Valves are provided for steam, water, and drain line.

MOUNTING ARRANGEMENT

The sterilizer is designed for either freestanding or recessed installation, as specified. Each sterilizer is height-adjustable. Sterilizer subframe is equipped with a synthetic rubber gasket to assure a tight fit between the cabinet panels on freestanding units, or between the front cabinet panel and wall partition on recessed units.

Stainless-steel side panels enclose the sterilizer body and piping on freestanding units.

ACCESSORY

Seismic tie-down kit conforms to Title 24 California Code of Regulations, 1993 Amendment Section 2336(B).

Material handling accessories include stainless-steel chamber tracks and stainless-steel loading cars with painted-steel carriages. Stainless-steel chamber rack and shelf are available for 39" (991 mm) sterilizers. See separate product literature for details.

Air Compressor, Portable, 115 Vac. This accessory is intended for pneumatic valves on sterilizers when an air utility is not provided by the facility. It is also used for back-up pressure source for the door seal in bioseal applications and for sterilizers utilizing an electric steam generator.

This is a portable 1.5 Gallon compressor tank that delivers 48 LPM @ 689 KPa (1.7 CFM @ 100 PSI). Refer to STERIS drawing no. 755718-038 for complete specifications.

NOTE: UL/CSA certified only.

OPTIONS

Air detector (integral factory piping option) is used to determine whether any air or non-condensable gas present in the chamber is sufficient to impair the sterilizing process.

Air differential seal (double door units only) is provided for the operating and/or non-operating end of the sterilizer. The seal minimizes passage of air from the nonsterile area to the sterile area. A compressed air supply is also required as a back-up means to operate the door seals

Bioseal (double door units only) is a 1/4" stainless-steel plate which is welded to the chamber and a 1/4" thick silicone gasket that extends between the plate and a carbon steel wall frame which is welded to wall imbeds. The bioseal is provided for the operating and/or non-operating end of the sterilizer to prevent the passage of airborne microorganisms from the space between the vessel body and the structural wall opening. Steam is the primary source of pressure behind the door seal. All sterilizers with bioseals have air back-up to maintain seal pressure when out of cycle or if the steam source is not available. If the bioseal option is selected, an increased wall opening is needed. Refer to the STERIS equipment drawing for the bioseal specifications.

Pure steam-to-chamber piping delivers steam, generated from Customer purified water source, to the chamber and its contents. All steam-to-chamber piping components are constructed of 300 series stainless steel. Solenoid brass valves are replaced by stainless-steel pneumatic valves requiring compressed air.. Available with Pressure Reducing Valve.

One or two RTD load probe(s) automatically sense the load

temperature during cycle operation. One or two thermal load probes are sealed through the sterilizer vessel and manually placed in the product container within the chamber prior to cycle operation.

Individual cycles can be set to start exposure phase according to load temperature, as sensed by the probe(s).

1" (25 mm) chamber penetration permits insertion of temperature probes, such as thermocouples or resistance temperature detectors (RTDs), into the chamber. The 1" TRI-CLAMP capped chamber penetration port is located at the side of the vessel so as not interfere with other piping.

1" (25 mm) and 3" (76 mm) penetrations permit insertion of temperature probes, such as thermocouples or resistive thermal devices (RTD), into the chamber.

Drain line reference probe automatically senses the drain line temperature during cycle operation. During the Sterilize phase, the chamber and reference probes are compared and if the difference is outside the allowable range, an alarm will occur.

Backflow preventer option can be installed on sterilizer piping to prevent the unwanted reverse flow of water or other substances into the potable water supply.

Closed Loop Chilled Water System (drain only). Closed loop cooling source is used to cool the steam effluent from the jacket and chamber. This greatly reduces the amount of water sent to the drain. Plate heat exchanger is included. See equipment drawings for closed loop utility requirements.

STERI-GREEN® Water Conservation System

This system significantly reduces the consumption of potable water. The STERI-GREEN system utilizes a mixing tank and an air-cooled heat exchanger to cool and recycle vacuum pump water and steam effluent. Water temperature is constantly monitored to minimize the need to add fresh cool water to the mixing tank. The end result is water savings in the range of 55 to 58% per sterilization cycle over the vacuum pump.

STERI-GREEN PLUS® Water Conservation System

The STERI-GREEN PLUS system utilizes facility chilled water supply. The system utilizes a mixing tank and a series of heat exchangers, integrated with the a chilled water loop, to cool and recycle vacuum pump water and effluent. Water temperature is constantly monitored to minimize the need to add fresh cool water to the mixing tank. This system provides up to 99% water savings.

Right Hand Piping. Piping is located on right side of sterilizer.

0.2 Micron Bacterial Retentive Filter provides sterile air during airbreak at end of cycle.

Printer on both ends. An additional printer is provided on the non-operating end of the sterilizer.

Dry Contacts Provide four relays to communicate the following equipment status: open, door closed, alarm, and unit on.

Auto Flush System (for units with a Carbon Steel Steam Generator) provides automatic flushing of steam generator upon startup of sterilizer. Auto-Flush is not required for stainless-steel steam generators.

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.

NOTES

1. The sterilizer is not supplied with a backflow preventer and, where required by local codes, installation of a backflow preventer in the water line is not provided by STERIS.
2. Pipe sizes shown indicate terminal outlets only. Building service lines, not provided by STERIS, must supply the specified pressures and flow rates.

3. Disconnect switches (with OFF position lockout only, by third parties) should be installed in electric supply lines near the equipment.
4. Access to the recess area from the control end of the sterilizer is recommended.
5. Clearances shown are minimal for installing and servicing the equipment.
6. Depending on the loading equipment used, additional clearance is required:
 - If shelves are used, length of sterilizer plus 24" (610 mm) at each door.
 - If loading car and carriage will be used, twice the length of the sterilizer at each door.
7. Floor drain should be provided within the confines of the sterilizer framework.

- Canada: 600 VAC, 60 Hz, 3-Phase

Sterilizer Feedwater

1" NPT, 20 to 50 psig (2.1 to 3.5 bar) dynamic. Water is used for vacuum pump, heat exchanger, and trap cooling. Refer to Table 1 for recommended water quality. Use of feed water within the nominal conditions will optimize equipment performance and reduce maintenance.

NOTE: Backflow prevention is not standard on the unit, but a backflow preventer option can be ordered.

Additional utilities may be required for units with the following:

- Liquid Air Cool (Compressed Air)
- Decontamination Cycle (Compressed Air)
- Bioseal (Compressed Air Backup)
- Air Differential Seal (Compressed Air)
- Stainless-Steel Pipe (Treated Water and Compressed Air)
- Indirect Steam Generator (75 psig Steam, minimum)
- Electric Steam generator, with exception of 26 x 26 x 39" unit (Compressed Air)

Consult Customer Service for specially configured equipment drawings.

UTILITY REQUIREMENTS

Refer to equipment drawing for detailed information.

Steam — 1" NPT, 50 to 80 psig (3.5 to 5.6 bar) dynamic, 97% to 100% vapor quality.

Drain — 2" ODT drain terminal. (Floor drain capacity must handle peak water consumption; refer to equipment drawing.)

Electrical –

- Domestic: 208/240 VAC, 60 Hz, 3-Phase, **or** 480 VAC, 60 Hz, 3-Phase
- International: 400 Volt, 50 Hz, 3-Phase

ENGINEERING DATA

| | | |
|---------------------------|---|-------------------|
| Steam¹: | Consumption: 148 lb/hr (67 kg/hr) • Peak Flow: 255 lb/hr (116 kg/hr) | |
| Water²: | Consumption per Cycle: • Peak Flow: 15 gal/min (57 L/min) 39": 48 gal (182L) 49": 60 gal (227L) 61": 75 Gal (284L) | |
| Operating Weight: | 26 x 26 x 39" (660 x 660 x 991 mm) | 2756 lb (1250 kg) |
| | 26 x 26 x 49" (660 x 660 x 1245 mm) | 3200 lb (1450 kg) |
| | 26 x 26 x 61" (660 x 660 x 1549 mm) | 3500 lb (1590 kg) |
| Noise Level: | Noise level is based on the vacuum pump, 74 DbA at 24"Hg vacuum. | |

1. 75-90 PSI dynamic steam pressure is required when operated with steam-to-steam generators.

2. Based on Prevac Cycle, 30 min. Sterilization time @ 121C (250F) and 5 min. Dry, empty chamber

Notes: Operating weight includes a full load in the chamber.

Water consumption data is based on running one fully loaded prevac cycle per hour and the machine idling for the remainder of the hour.

Table 1. Recommended Feed Water Quality for Sterilizers

| CONDITION | NOMINAL CONDITIONS | MAXIMUM CONDITIONS |
|---|--------------------|--------------------|
| Temperature | 4°-16°C (40°-60°F) | 21°C (70°F) |
| Total Hardness as CaCO₃* | 50-120 mg/L | 171 mg/L |
| Total Dissolved Solids | 100-200 mg/L | 500 mg/L |
| Total Alkalinity as CaCO₃ | 70-120 mg/L | 180 mg/L |
| pH | 6.8-7.5 | 6.5-8.5 |
| Total Silica | 0.1 - 1.0 mg/L | 2.5 mg/L |

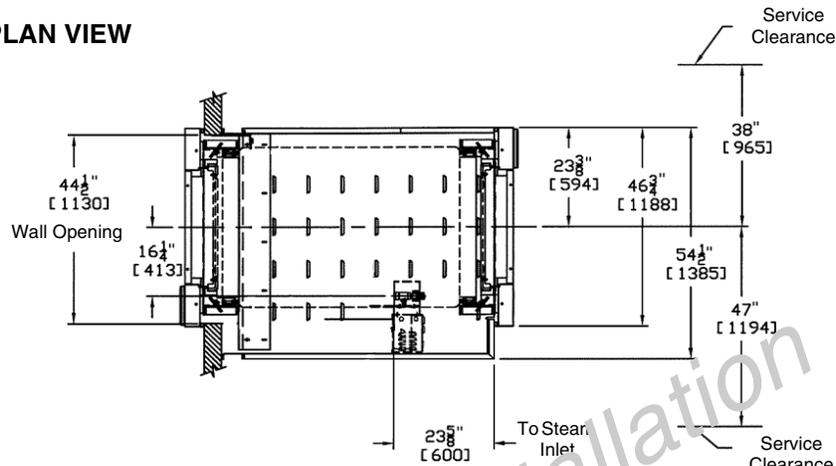
* 17.1 mg/L = 1.0 grain hardness

Refer to the Following Equipment Drawings for Installation Details

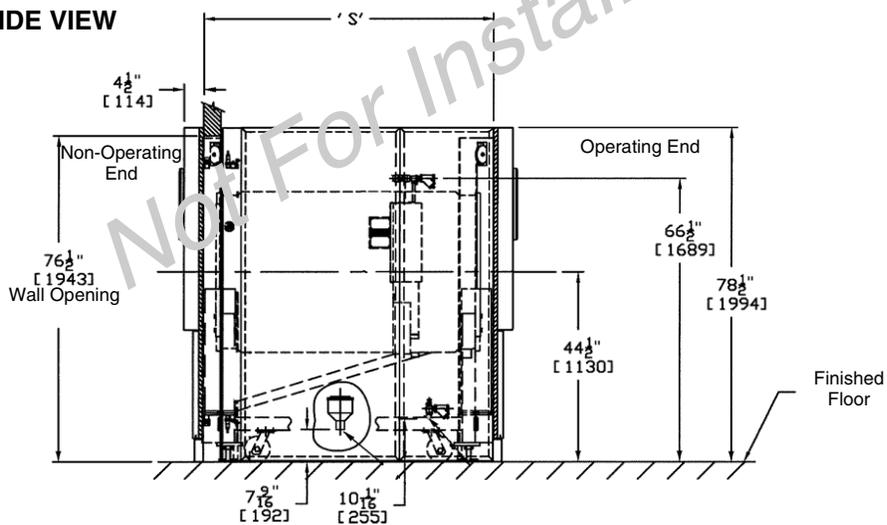
| 430LS SINGLE DOOR | | 430LS DOUBLE DOOR | |
|-------------------|------------------------|-------------------|------------------------------------|
| Drawing Number | Description | Drawing Number | Description |
| 387363-583 | Recessed | 387363-585 | Recessed One Wall/Cabinet |
| 387363-584 | Cabinet | 387363-586 | Recessed Two Walls |
| 387363-587 | Recessed with ESG (CS) | 387363-589 | Recessed One Wall/Cabinet with ESG |
| 387363-588 | Cabinet with ESG (CS) | 387363-590 | Recessed Two Walls with ESG |

Measurements are: inches [mm]

PLAN VIEW

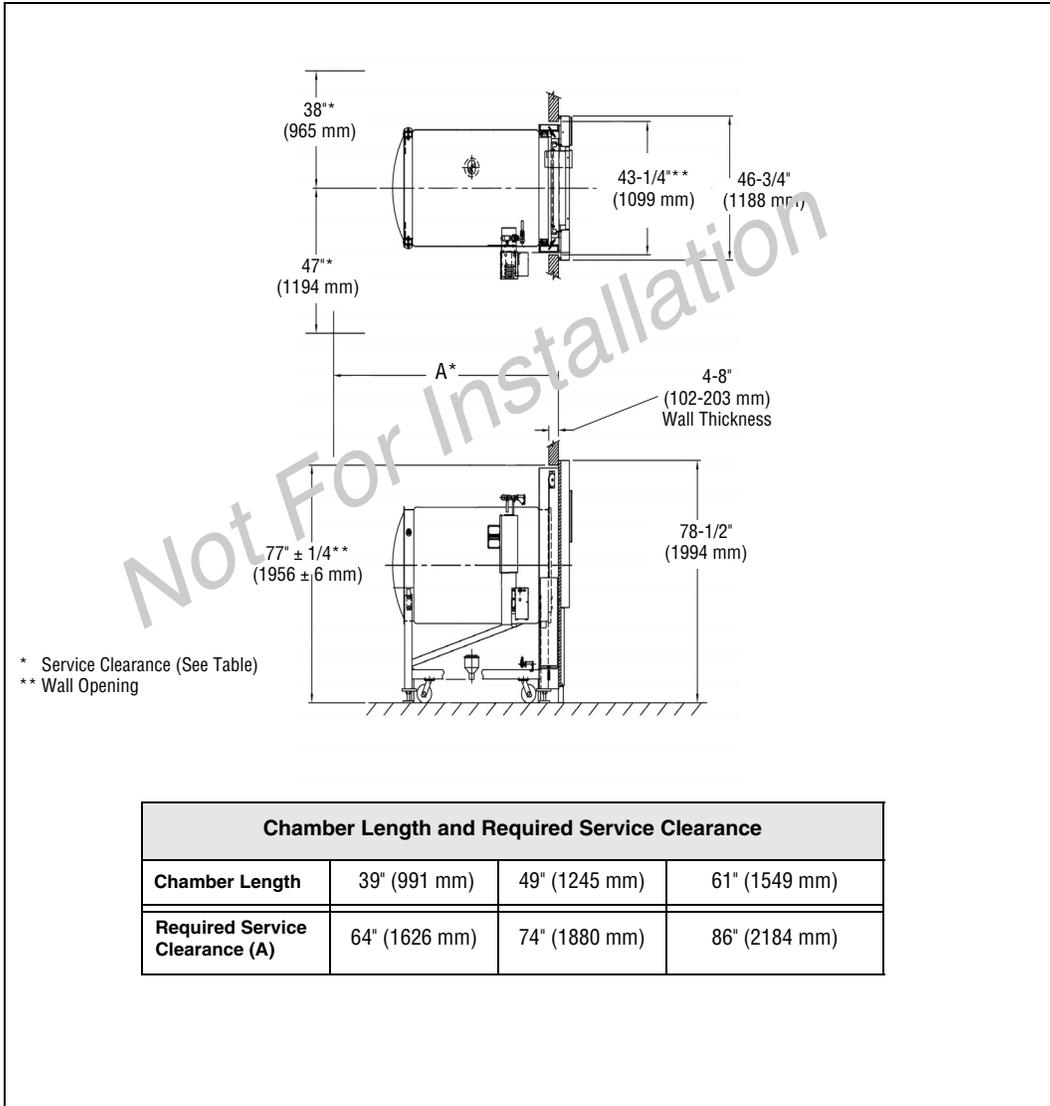


SIDE VIEW



| SIZE | 'S' |
|-------------------------------------|---------------|
| 26 x 26 x 39" (660 x 660 x 991 mm) | 46" (1168 mm) |
| 26 x 26 x 49" (660 x 660 x 1245 mm) | 56" (1422 mm) |
| 26 x 26 x 61" (660 x 660 x 1549 mm) | 68" (1727 mm) |

IF A LOADING CAR AND CARRIAGE ARE TO BE USED, THE FRONT CLEARANCE SHOULD EQUAL TWICE THE LENGTH OF THE STERILIZER



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