

APPLICATION

The AMSCO 630LS 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. The prevacuum configuration sterilizer 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

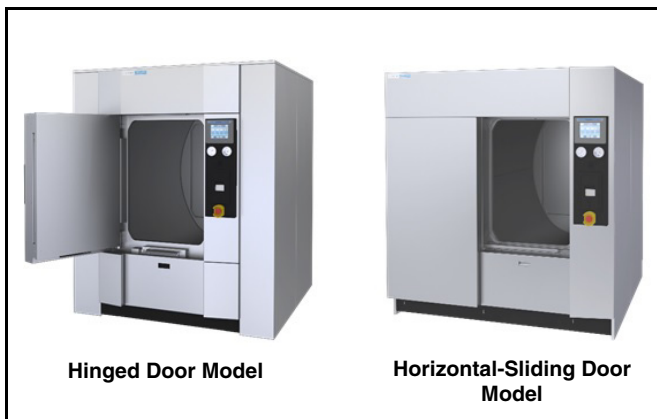
The sterilizer is equipped with the latest features in both state of the art technology and ease of use.

Interior Chamber Dimensions

- 26 x 37.5 x 42" (660 x 953 x 1067 mm) 671L capacity
- 26 x 37.5 x 54" (660 x 953 x 1372 mm) 852L capacity
- 26 x 37.5 x 66" (660 x 953 x 1676 mm) 1054L capacity

Hinged or Sliding Door Configuration

- Hinged door with fast operating, low-effort door lock mechanism. Manual door handle lock lever requires a single 30° handle movement to lock or unlock.
- Sliding door is controlled from touch screen. Quiet motor-driven cable and pulley mechanism opens and shuts door. As viewed from operating-end, door slides horizontally left when opening.



Hinged Door Model

Horizontal-Sliding Door Model

(Typical - details may vary.)

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 840 resolution color-active matrix
- Display is designed with emphasis on human factors and user recognizable symbols.

Selections Checked Below Apply To This Equipment

SIZE

- ☐ 26 x 37.5 x 42" (660 x 953 x 1067 mm)
- ☐ 26 x 37.5 x 54" (660 x 953 x 1372 mm)
- ☐ 26 x 37.5 x 66" (660 x 953 x 1676 mm)

☐ SINGLE-DOOR CONFIGURATION

- ☐ Hinged Door¹ (☐ Left ☐ Right)
- ☐ Horizontal-Sliding Door²

MOUNTING (2 options)

- ☐ Cabinet Enclosed/Freestanding
- ☐ Recessed

☐ DOUBLE-DOOR CONFIGURATION⁵

- ☐ Hinged Door³
 - ☐ Right/Left ☐ Right/Right
 - ☐ Left/Right ☐ Left/Left
- ☐ Horizontal-Sliding Door⁴

MOUNTING (2 options)

- ☐ Recessed through One Wall
- ☐ Recessed through Two Walls

STEAM SOURCE

- ☐ Building Steam
- ☐ Stand Alone Electric Steam Generator (Provided by STERIS)
- ☐ Integral Indirect Clean Steam Generator (Single Tube)¹²
- ☐ ESG† Carbon Steel (45kw); Includes Auto-Flush System⁹
- ☐ ESG Stainless Steel (45kw)⁹
- ☐ ESG Carbon Steel (65kw); Includes Auto-Flush System^{5, 9, 11}

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)

OPTIONS

- ☐ Liquid Air Cooling (with Vacuum)
- ☐ Effluent Decontamination Cycle (with Vacuum)
- ☐ Pure Steam Piping to Chamber
- ☐ RTD Load Probe and F₀ Sterilization
 - ☐ One ☐ Two
- ☐ Bioseal (double door units only)^{8, 9, 10}
 - ☐ Sterile Side ☐ Non-Sterile Side
- ☐ Air Differential Seal (double door units only)^{9, 10}
 - ☐ Sterile Side ☐ Non-Sterile Side
- ☐ Additional 1" Chamber Penetration
- ☐ Additional One 1" and one 3" Penetration
- ☐ Printer on Both Ends
- ☐ Reference Recorder (3 Pen)
- ☐ Right Hand Piping
- ☐ Backflow Preventer
- ☐ Closed Loop Chilled Water System (Drain Only)
- ☐ 0.2 Micron Bacterial Retentive Filter
- ☐ Drain Line Reference Probe
- ☐ Air Detector System
- ☐ STERI-GREEN® Water Conservation System
- ☐ STERI-GREEN PLUS® Water Conservation System (Chilled water required)
- ☐ Dry contacts

ACCESSORIES

- ☐ Loading Car ☐ Transfer Carriage
- ☐ Loading Car, Transfer Carriage & Track Assembly
 - ☐ Single Door ☐ Double Door

- ☐ Chamber Rack and Shelf 42" (1067 mm)⁶
- ☐ Chamber Rack and Shelf 54" (1372 mm)⁷
- ☐ Seismic Tie-Down Kit⁸
- ☐ Air Compressor, Portable, 115 Vac

Notes:

- Door direction of swing is as viewed from OE.
- Configuration for Single-Door, Horizontal Sliding Door – door slides left to open.
- Double-Door configuration – First hinge position applies to operating-end (OE); second position applies to non-operating end (NOE).
- Configuration for Double-Door, Horizontal Sliding Door – door slides left to open at OE; door slides right to open at NOE.
- Double door cabinet enclosed units with integral steam generators require SSQ.
- Chamber Length: 42" (1067 mm) units only.
- Chamber Length: 54" (1372 mm) units only.
- Seismic Tie-Down Kit based on CA requirements. Sterilizers (all lengths) with Bioseal and/or steam generator on the side (42" only) require a special seismic kit through SSQ.
- Compressed air required for Single Door and Double Door sterilizers with integral electric steam generator, units with air differential or bioseal, or integral indirect steam generator units.
- Special Cabinet required for units with Bioseal, RH piping, or 66" units with Electric Steam Generator.
- 65kw ESG's are recommended for use with 54" and 66" sterilizers.
- Integral indirect clean steam generator requires field certification for UL/CSA.

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

Item _____

Location(s) _____

† ESG - Electric Steam Generator
*CRN is available on special basis

*Allen-Bradley MicroLogix™ and Allen-Bradley PanelView Plus™ are registered trademarks of Rockwell Automation, Inc.

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 37.5" (660 x 950 mm) chamber cross-section is sized to allow for efficient, high-volume processing.

Fast-operating, low-effort manual door lock mechanism (hinged-door models) allows the door to be locked or unlocked, using a single 30° handle motion.

Power horizontal-sliding door. Control panel operated horizontal-sliding door is available in left-hand (door slides left to open), single- or double-door models.

Resistance Temperature Detectors (RTDs) 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 3.

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 entire vessel and load. Shutdown may be programmed to activate at end of any designated cycle or time of day. When activated, 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.

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

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.

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

Visible pressure gauges (chamber and jacket pressure gauges) are mounted on both the operating end and the non-operating end (if double door) control panels and are visible to the operator.

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 in the temperature range of 121°C to 137°C. The prevacuum cycle uses a mechanical air evacuation system.
- **Gravity Cycle:** for the sterilization of heat- and moisture-stable goods in the range of 100°C to 137°C), and decontamination of bagged basic laboratory wastes. The gravity cycle uses the gravity air-displacement principle.
- **Liquid Cycle:** for sterilization of liquids and media in vented borosilicate glass or metal containers in the range of 100°C to 123°C. 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.
- **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.

TEST CYCLES

- **Vacuum Leak Test:** 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 CYCLE

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.

Effluent Decontamination Cycle: processes contaminated laboratory waste (BL-3 and BL-4). The condensate produced during processing cycle is decontaminated before discharge to floor drain. Steam is admitted through bottom of sterilizer chamber, and chamber is exhausted out top side of vessel. During 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.

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. Control system features provided are 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 and printer, are located on operating (load or nonsterile) end of sterilizer. If 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** is high resolution (8 dots per mm), fast and quiet, printing 25 lines per minute on industrial grade thermal paper. 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 beginning and end of each cycle and at transition points during the cycle. Three paper tape rolls are furnished with each unit. Printout 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 **change values** menu on either end of a double door sterilizer. Utility shutdown parameters can only be changed on OE display. In addition to adjustment of cycle values, the following operating parameters can also be changed through 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** – End of cycle and alarm tones have adjustable volumes ranging from off, low, medium and high. Alarm tone does not have selection for off. Touching display buttons will create an audible beep.
 - » **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 user to receive text messages or emails alerts regarding status of the autoclave. The operator can choose from a list of # possible alerts from which to be notified.

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 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 USB port.

SAFETY FEATURES

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

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

Pressure relief valve limits amount of pressure buildup so rated pressure in 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 chamber is fitted with a welded 316L stainless-steel dished head.

Insulated sterilizer vessel is ASME and PED rated at 45 psig (3.1 bar) and includes one 1"-NPT access port for Customer use. Steam-supply opening inside chamber is shielded by a stainless-steel baffle.

Chamber Door(s)

Chamber door is constructed of Type 316L stainless steel.

During cycle operation, door is sealed by a steam-activated door seal. Door seal is constructed of special long-life rubber compound. When sterilizer cycle is complete, door seal retracts under vacuum into a machined groove in sterilizer end frame.

A proximity switch senses when 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 prevents the door from opening, 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. Sterilizer door is fitted with a stainless-steel panel that insulates operator from chamber end ring, lessening chance of accidental contact with 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

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

Steam Source

Sterilizer is piped, valved, and trapped to receive building-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, and a brass pressure regulator.

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

Integral Electric Steam Generator

A 45 kW steam generator, manufactured of carbon or stainless steel, is available. To reduce cycle time, a 65kW steam generator (carbon steel) is recommended for the 54" and 66" units.

When this option is selected, an electric steam generator is positioned behind or to the side of the sterilizer. Additional floor space is required, either at the rear of the sterilizer for single door units, or at the side for double door units. There are also additional utility requirements for this option.

Refer to the appropriate equipment drawings if an integral electric steam generator is required. **Auto Flush** (for units with a Carbon Steel Steam Generator) provides automatic flush of the steam generator upon sterilizer startup. Auto-Flush is not required for stainless-steel steam generators.

Integral Indirect Clean Steam Generator

Utilizes Customer's plant steam (minimum 75 psig [517 kPa]) and high quality water (minimum specific resistivity of 1.0 MΩ·cm) to supply pure steam to sterilizer. Generator system is integrally mounted to sterilizer framework and automatically operated by sterilizer electronic control system. Clean steam-to-chamber piping option must be selected. (See tech data SD589 for details.)

Piping

All piping connections terminate within confines of sterilizer, and are accessible from 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 emergency drain line exhaust.

MOUNTING ARRANGEMENT

The sterilizer is designed for either freestanding or recessed installation, as specified. (For double-door mounting, the recessed installation can be through one or two walls.) Each sterilizer is height-adjustable. Sterilizer subframe is equipped with a synthetic rubber gasket to provide a tight fit between the cabinet panels on freestanding systems, or between the front cabinet panel and wall partition on recessed systems.

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

ACCESSORIES

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 42" (1067 mm) and 54" (1372 mm) sterilizers. See separate literature for details.

NOTE: UL/CSA certified only.

Air compressor, portable (115 Vac), 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.

The unit's 1.5 gallon compressor tank delivers pressurized air at 48 LPM @ 689 KPa (1.7 CFM @ 100 PSI). Refer to STERIS drawing no. 755718-038 for complete specifications.

OPTIONS

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

RTD load probe and F_0 sterilization automatically sense load temperature during cycle operation. A single thermal load probe is sealed through sterilizer vessel and manually placed in product container within chamber prior to cycle operation.

In conjunction with the load probe option, individual cycles can be set to start the exposure phase according to chamber drain temperature or according to load temperature. F_0 set points are also available for each cycle, allowing for exposure phase termination based on the calculated F_0 value. Note that a maximum of two probes can be used.

Bioseal (double door units only) consists of a 1/4" stainless-steel plate welded to 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 option is available for both the operating and non-operating ends of the sterilizer. The seal is designed 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 bioseal option is selected, an increased wall opening is needed. Refer to STERIS equipment drawing for bioseal specifications.

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

1" (25 mm) chamber penetration permits insertion of temperature probes, such as thermocouples or resistance temperature detectors (RTDs), into the chamber.

One 1" (25 mm) and one 3" (76 mm) chamber penetrations permit insertion of temperature probes, such as thermocouples or resistance temperature detectors (RTDs), into the chamber.

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 (with 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 65 to 67% per sterilization cycle over the vacuum pump alone.

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.

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

Right hand piping. Piping is located on right side of sterilizer.

Reference recorder is remote mounted. The option is an independent recorder provided to record chamber drainline temperature and chamber pressure.

0.2 micron bacterial retentive filter provides sterile air during airbreak at end of cycle.

Printer on both ends provides an additional printer at the sterilizer non-operating end.

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.

Drain line reference probe automatically senses temperature of drain during cycle operation. Individual cycles can be set to start exposure phase according to either the chamber drain temperature, or the load temperature.

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 recess area from control end of the sterilizer is recommended.
5. Clearances shown are minimal for equipment installation and servicing.
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
 - Floor drain should be provided within the confines of the sterilizer framework.

UTILITY REQUIREMENTS

The following utility requirements information is general. Refer to equipment drawings for detailed information.

Drain

2" ODT drain terminal (floor drain capacity must handle peak water consumption)

Electric Control, Domestic

480 V, 60 Hz, 3-Phase, or
208/240 V, 60 Hz, 3-Phase, or
600 VAC, 60 Hz, 3-Phase

Electric Control, International

400 V, 50 Hz, 3-Phase

Sterilizer Feedwater Pressure: 20 to 50 psig (1.38 to 3.45 bar), dynamic, Size: 1" NPT

Steam

Pressure: 50 to 80 psig (3.45 to 5.52 bar, dynamic), condensate free, and 97% to 100% vapor quality

Size: 1" NPT

Additional utilities may be required for units with the following options:

- Double Door Units w/Interlocks & Air Differential Seal (Compressed Air)

- Liquid Air Cool (Compressed Air)
- Decontamination Cycle (Compressed Air)
- Bioseal (Optional Compressed Air Backup)
- Stainless-Steel Piping (Treated Water and Compressed Air)
- Indirect Steam Generator (minimum 75 psig steam)

Consult Customer Service for specially configured equipment drawings.

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

ENGINEERING DATA

Steam ¹	Pressure:	50 to 80 psig (3.45 to 5.52 bar, dynamic), condensate free, and 97% to 100% vapor quality		
	Consumption:	26 x 37.5 x 42" (660 x 953 x 1067 mm):	Peak: 190 lb/hr (86 kg/hr)	Avg. 112 lb/hr (51 kg/hr)
		26 x 37.5 x 54" (660 x 953 x 1372 mm):	Peak: 255 lb/hr (116 kg/hr)	Avg. 148 lb/hr (67 kg/hr)
		26 x 37.5 x 66" (660 x 953 x 1676 mm):	Peak: 335 lb/hr (152 kg/hr)	Avg. 185 lb/hr (84 kg/hr)
	Peak Flow: (60" unit)	335 lb/hr (152 kg/hr)		
Water	Consumption:	130 gal/hr (495L/hr)		
	Peak Flow:	15 gal/min (57 L/min)		
Op Wgt.	26 x 37.5 x 42" (660 x 953 x 1067 mm)	3800 lb (1720 kg)		
	26 x 37.5 x 54" (660 x 953 x 1372 mm)	4200 lb (1900 kg)		
	26 x 37.5 x 66" (660 x 953 x 1676 mm)	4700 lb (2125 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.

Notes:

- Operating weight includes a full load in the chamber.
- Water consumption data based on running one fully loaded prevac cycle per hour and machine idling for remainder of the hour.

Table 1. Recommended Feed Water Quality for Sterilizers

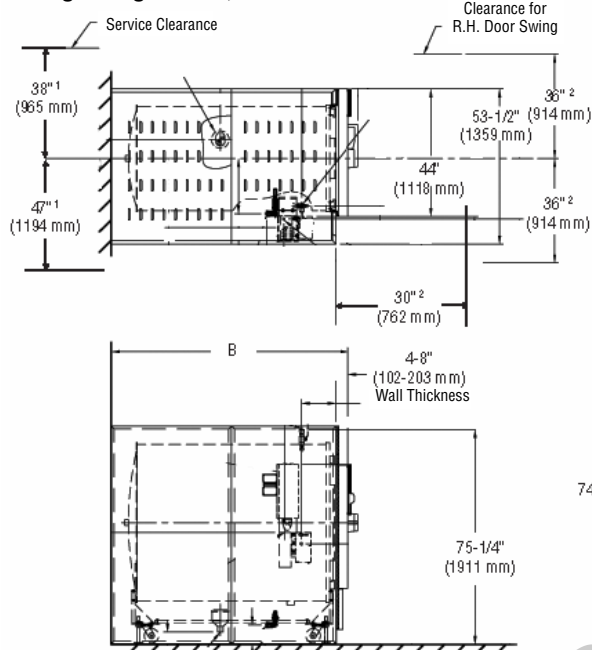
Condition	Nominal	Maximum
Temperature	4°-16°C (40°-60°F)	21°C (70°F)
Total Hardness as CaCO ₃ ^(a)	50-120 mg/L	171 mg/L
Total Dissolved Solids	100-200 mg/L	500 mg/L
Total Alkalinity as CaCO ₃	70-120 mg/L	180 mg/L
pH	6.8-7.5	6.5-8.5
Total Silica	0.1 - 1.0 mg/L	2.5 mg/L

(a) 17.1 mg/L = 1.0 grain hardness

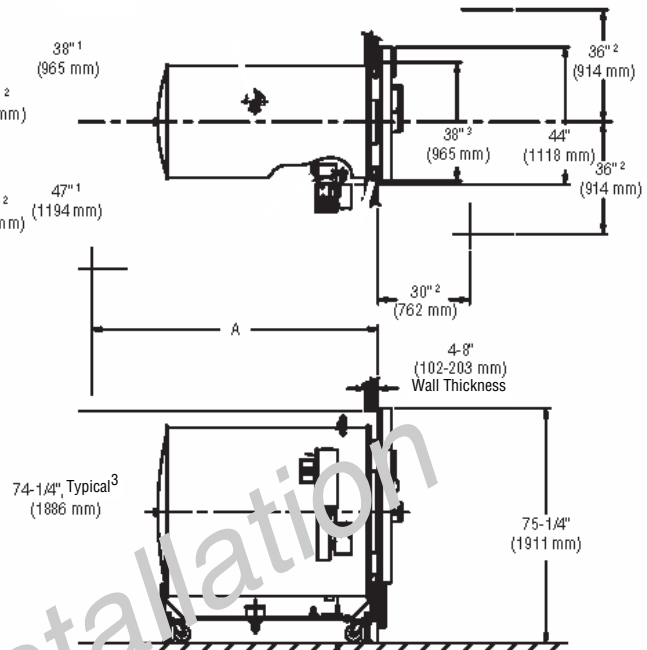
Refer to the Following Equipment Drawings for Installation Details

SINGLE DOOR UNITS		DOUBLE DOOR UNITS	
630LS HINGED DOOR		630LS HINGED DOOR	
Drawing Number	Description	Drawing Number	Description
387363-593	Recessed	387363-595	Recessed One Wall/Cabinet
387363-594	Cabinet	387363-596	Recessed Two Walls
387363-597	Recessed with ESG (CS)	387363-599	Recessed One Wall/Cabinet with ESG
387363-598	Cabinet with ESG (CS)	387363-600	Recessed Two Walls with ESG
630LS SLIDING DOOR		630LS SLIDING DOOR	
Drawing Number	Description	Drawing Number	Description
387363-603	Recessed	387363-605	Recessed One Wall/Cabinet
387363-604	Cabinet	387363-606	Recessed Two Walls
387363-607	Recessed with ESG (CS)	387363-609	Recessed One Wall/Cabinet with ESG
387363-608	Cabinet with ESG (CS)	387363-610	Recessed Two Walls with ESG

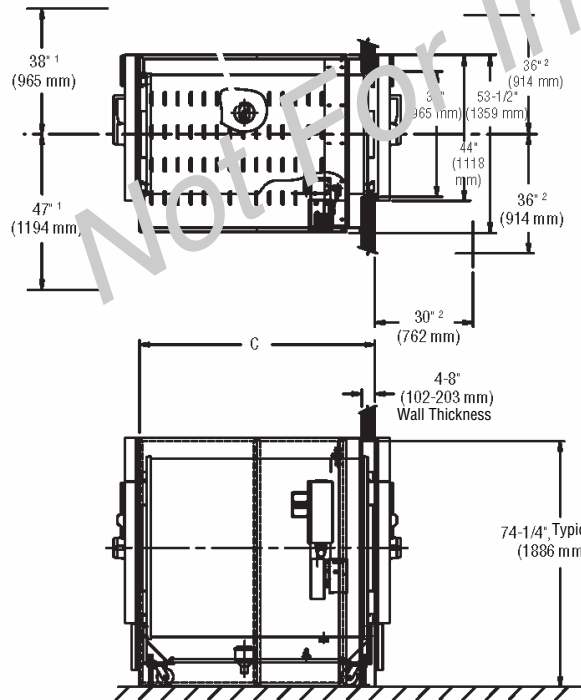
Single Hinged-Door, Cabinet Enclosed



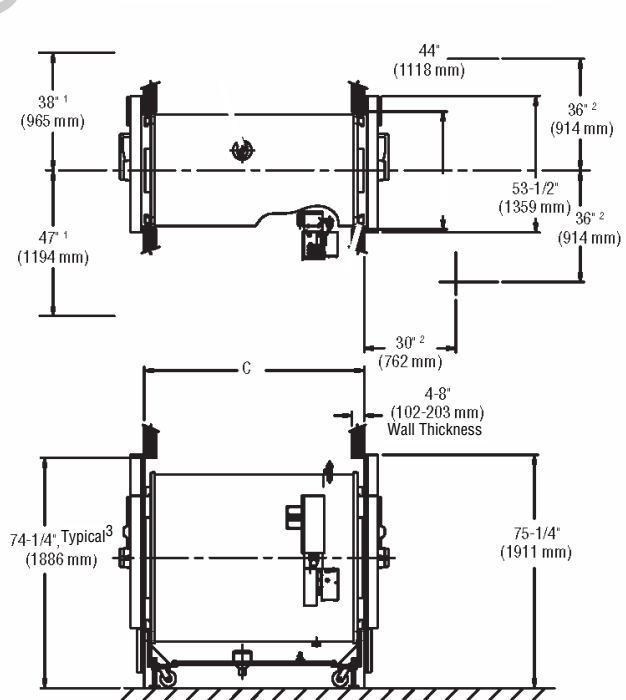
Single Hinged-Door, Recessed, One Wall



Double Hinged-Door, Recessed, One Wall



Double Hinged-Door, Recessed, Two Walls



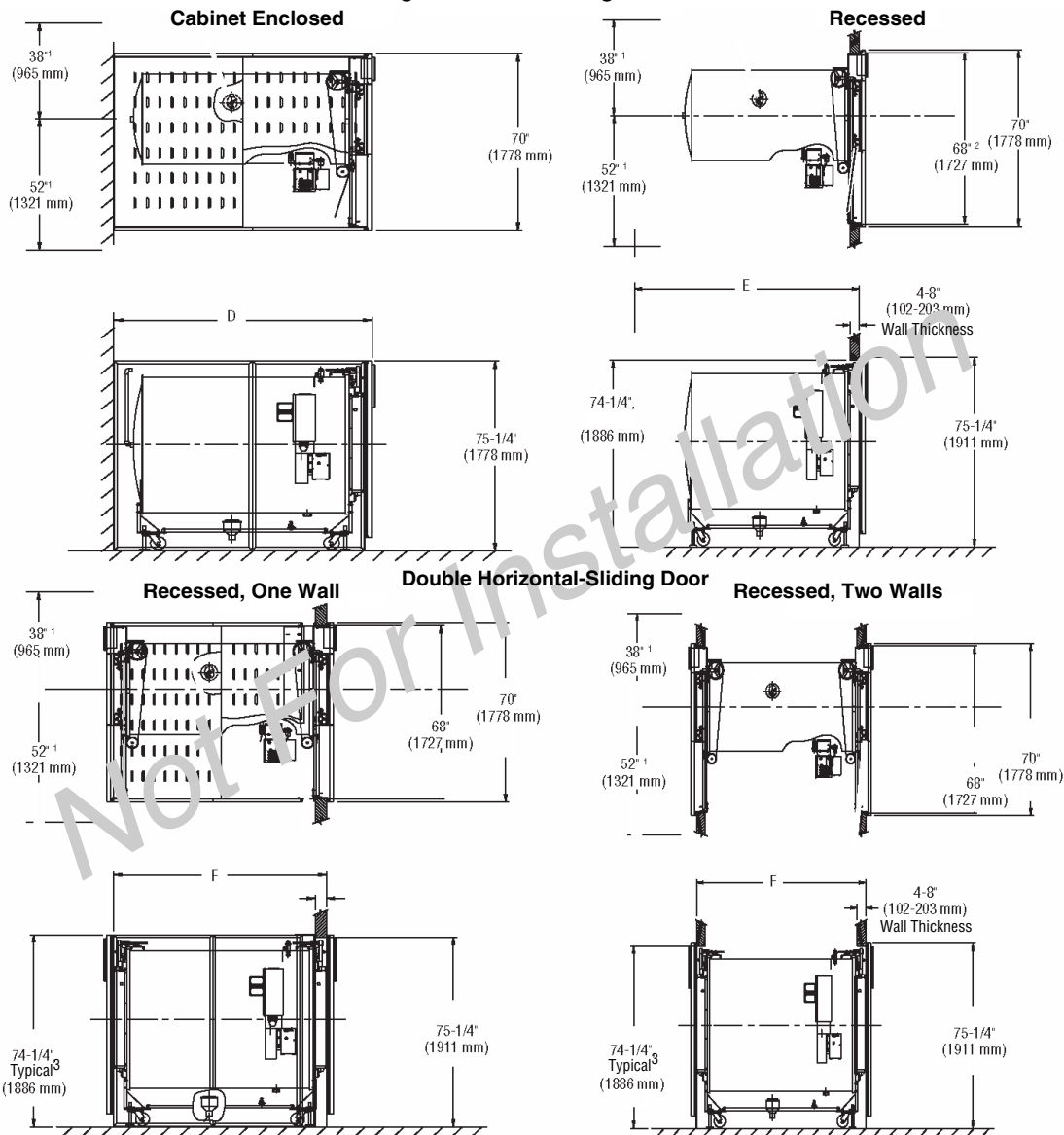
¹ Service Clearance - new construction only. Unit may be installed in existing Eagle 3000 space without facility modification.

² Door Swing (left hand swing shown)

³ Wall Opening

	Overall, Installed, Chamber Length (Refer to Illustrations)		
	42" (1067 mm)	54" (1372 mm)	66" (1676 mm)
A	69" (1753 mm)	81" (2057 mm)	93" (2362 mm)
B	58" (1473 mm)	70" (1778 mm)	82" (2082 mm)
C	48" (1219 mm)	60" (1524 mm)	72" (1829 mm)
D	59" (1499 mm)	71" (1803 mm)	83" (2108 mm)
E	71-1/2" (1816 mm)	83-1/2" (2121 mm)	95-1/2" (2425 mm)
F	53-1/4" (1352 mm)	65-1/4" (1657 mm)	77-1/4" (1962 mm)

Single Horizontal-Sliding Door



¹ Service Clearance - new construction only. Unit may be installed in existing Eagle 3000 space without facility modification.

² Door Swing (left hand swing shown)

³ Wall Opening

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