

APPLICATION

Two configurations are available for sterilization of heat- and moisture-stable materials used in healthcare facilities:

- **Prevacuum** – designed for fast, efficient sterilization of heat- and moisture-stable materials. Pre-vacuum configuration sterilizers are equipped with prevacuum, gravity, liquid, leak test, and daily air removal (Bowie-Dick) test cycles.
- **Steam Flush Pressure Pulse (SFPP)** – designed for fast, efficient sterilization of heat- and moisture-stable materials. This configuration sterilizer uses the Steam Flush Pressure Pulse cycle, which features an above-atmospheric pressure level conditioning phase. SFPP sterilizers are equipped with SFPP, WRAP/ SFPP, prevacuum, gravity, liquid, leak test, and daily air removal (Bowie-Dick) test cycles.

DESCRIPTION

Amsco Century Medium Steam Sterilizers are equipped with the latest features in both state-of-the-art technology and ease of use.



(Typical only - some details may vary.)

Primary Product Features

Interior Chamber Dimensions

- 26 x 37.5 x 36" (660 x 950 x 910 mm)
- 26 x 37.5 x 48" (660 x 950 x 1220 mm)
- 26 x 37.5 x 60" (660 x 950 x 1520 mm)

48" and 60" configurations include choice of a single or double door; 36" configuration provides single door, only.

- **Hinged door** with fast operating, low-effort door lock mechanism. Door handle lock lever requires a single 30° handle movement to lock or unlock.
- **Horizontal-sliding door** with quiet, motor-driven cable and pulley mechanism. Door travels horizontally right to left to open, and is controlled from the touch screen.

The Selections Checked Below Apply To This Equipment

TYPE

- Prevacuum
- Steam Flush Pressure Pulse (SFPP)

SIZE

- 26 x 37.5 x 36" (660 x 950 x 910 mm) (single door only)
- 26 x 37.5 x 48" (660 x 950 x 1220 mm)
- 26 x 37.5 x 60" (660 x 950 x 1520 mm)

STEAM SOURCE

- Building Steam

VACUUM PUMP ELECTRIC SERVICE

- 208/240 VAC, 60 hz, 3-Phase, 6A per phase
- 480 VAC, 60 hz, 3-Phase, 3A per phase

DOOR CONFIGURATION

Single-door

- Hinged
- Horizontal-sliding

Select direction of door swing or slide to open, as viewed from Sterilizer's Operating End:

- Left-hand
- Right-hand (not available for sliding-door units)

Double-door*

- Hinged Door

NOTE: Operating End hinge position listed first; Non-operating End hinge listed second.

- Right-hand/Left-hand
- Right-hand/Right-hand
- Left-hand/Right-hand
- Left-hand/Left-hand

Horizontal-sliding Door

NOTE: Operating End slide direction listed first; Non-operating End slide direction listed second.

- Left-hand/Right-hand

SINGLE-DOOR MOUNTING

- Cabinet Enclosed/Freestanding
- Recessed

DOUBLE-DOOR MOUNTING

- Recessed through One Wall
- Recessed through Two Walls

* 26 x 37.5 x 36" sterilizers not available in double-door configuration.

ACCESSORIES

- 36" (910 mm) Chamber Length
- 48" (1220 mm) Chamber Length
- 60" (1520 mm) Chamber Length
- Loading Car
- Transfer Carriage
- Chamber Track Assembly
 - Single Door Double Door
- Loading Car, Transfer Carriage, and Track Assembly
 - Single Door Double Door
- (36" Units, only) Chamber Rack and Shelf
- Seismic Tie-down Kit

Item _____
 Location(s) _____

Century control system with enhanced functionality and user-friendly interface screen.

- Touch-sensitive screen with 30-line x 40-character display area
- Ink-on-paper impact printer
- Help screens for programming and troubleshooting alarm conditions
- Automatic check of control program and cycle data maintains process integrity.
- Vacuum pump is supplied on all units to effectively pull chamber to specified vacuum levels, as well as reduce water consumption.

STANDARDS

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

- **Underwriters Laboratory (UL) Standard 3101** as certified by ETL Testing Laboratories, Inc.
- **Canadian Standards Association (CSA) Standard C22.2, No. 1010.**
- **ASME Code, Section VIII, Division 1** for unfired pressure vessels. The pressure vessel is so stamped; ASME Form U-1 is furnished. Shell and door are constructed to withstand working pressure of 45 psig (3.1 bar).

FEATURES

26 x 37.5" chamber cross-section is sized to allow for efficient, high-volume processing of sterilization.

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

Horizontal-sliding Power Door is controlled from the touch screen display. The door slides horizontally on a rigid rail assembly housed within stainless-steel paneling. Door drive system consists of a cable and pulley arrangement driven by an electric motor.

Resistive Thermal Detectors (RTD) are installed for sterilizer temperature control. The dual element 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 entire cycle.

Electronic water saving control includes an RTD to control the amount of water used in condensing the exhausted chamber steam.

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

Automatic utilities start-up/shutdown permits utilities conservation. Shutdown may be programmed to activate at the 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.

Two-piece insulation sleeve is fitted around exterior of the sterilizer vessel. The sleeve is sealed and held in place by hook-and-loop closures. Insulation is asbestos-free and chloride-free, silicone impregnated, oil- and water-resistant fiberglass.

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

PROCESSING CYCLES

All processing cycles factory programmed into the sterilizer control have been validated to **AAMI ST8**.

Prevacuum configuration sterilizers are factory programmed with the following cycles: Prevacuum (with either 5-minute or 20-minute dry phases), Gravity, Liquid, and Test Cycles.

SFPP configuration sterilizers are factory programmed with the following cycles: Wrap/SFPP, SFPP, Prevacuum, Gravity, Liquid, and Test Cycles.

See cycle descriptions below for more details:

- **Prevacuum Cycle:** For efficient, high-volume processing of heat- and moisture-stable materials, such as fabrics and wrapped hard goods. This process incorporates a series of pressure/vacuum pulses to condition the load prior to sterilization.

- » Sterilize temperature: 270°F (132°C)
- » Sterilize time: 4 minutes
- » Dry time: 5 minutes or 20 minutes

- **250°F Gravity Cycle:** For sterilizing fabrics.

- » Sterilize temperature: 250°F (121°C)
- » Sterilize time: 30 minutes
- » Dry time: 15 minutes

NOTE: A Gravity Cycle, adjusted to 270°F for 25-minute sterilize exposure time, can be used for processing fabric packs.

- **270°F Gravity Cycle:** For sterilizing hard goods.

- » Sterilize temperature: 270°F (132°C)
- » Sterilize time: 15 minutes
- » Dry time: 30 minutes

NOTE: 270°F temperature must be set by user.

- **SFPP Cycle:** For efficient, high-volume processing of porous loads. Process incorporates a series of steam flushes and pressure pulses at pressures above atmospheric

levels to condition load prior to sterilization.

- » Sterilize temperature: 270°F (132°C)
- » Sterilize time: 4 minutes
- » Dry time: 20 minutes

• **Wrap/SFPP Cycle:** For efficient, high-volume processing of heat- and moisture-stable materials, such as double-wrapped instrument trays. This process incorporates a series of steam flushes and pressure pulses at pressures above atmospheric levels to condition load prior to sterilization.

- » Sterilize temperature: 270°F (132°C)
- » Sterilize time: 4 minutes
- » Dry time: 20 minutes

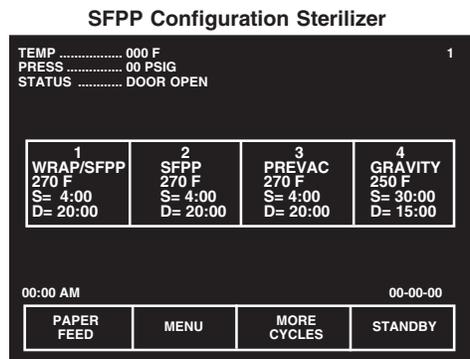
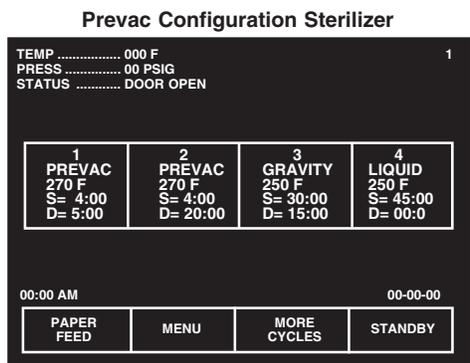
• **Liquid Cycle:** This cycle is used for sterilizing liquids in borosilicate containers with vented closures.

- » Sterilize temperature: 250°F (121°C)
- » Factory programmed sterilize time: 45 minutes
- » Dry time: not applicable

IMPORTANT: It is inappropriate for a healthcare facility to sterilize liquids for direct contact with patients.

TESTING CYCLES

- **Vacuum Leak Test:** This cycle is used for testing the vacuum integrity of the sterilizer's piping. Sterilizer chamber must be empty while running this test cycle. Preprogrammed cycle parameters cannot be adjusted by the user.
- **DART (Bowie-Dick) Test Cycle:** This cycle is used to conduct a Bowie-Dick test on the sterilizer. Recommended load is a STERIS Dart® pack, or a properly prepared



Typical Touch Screen Displays

Bowie-Dick test pack. Preprogrammed cycle parameters cannot be adjusted by the user.

- » Sterilize temperature: 270°F (132°C)
- » Sterilize time: 3.5 minutes
- » Dry time: 1 minute

CONTROL SYSTEM

Design Features

Century control system monitors and controls all sterilizer operations and functions. The control system is factory-programmed with standard sterilizing cycles. All operator-accessible control functions can be changed using the touch screen control.

IMPORTANT: If factory-programmed cycle values are changed, it is the responsibility of the healthcare facility to validate the efficacy of the changed cycle.

Cycle values and operating features may be adjusted and verified prior to cycle operation. Cycle parameters are retained in control memory for repeated use.

Once cycle is started, cycles and cycle values cannot be changed until cycle is complete. If chamber temperature drops below set point during the exposure phase, the timer is set to stop and automatically reset once normal operating temperature is reached.

Critical control system components are housed within a sealed compartment to protect the components from moisture and heat generated during the sterilization process. A cooling fan with filter is installed in the housing compartment to maintain positive pressure within the compartment, keeping components cool and dust-free.

Operator interface control panel, consisting of a touch screen and impact printer, is located on the operating (i.e., load or non-sterile) end of the sterilizer. If sterilizer is equipped with double doors, an additional touch screen is provided on the sterilizer's non-operating (i.e., unload or sterile) end.

- **Touch-sensitive Screen** features a 30-line x 40-character 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 "touch pads." 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.
- **Ink-on-paper Impact Printer,** located above touch screen, provides an easy-to-read printed record of all pertinent cycle data on 2 1/4" wide paper. Data is automati-

cally printed at the beginning and end of each cycle and at transition points during the cycle.

Printer take-up spool stores an entire roll of paper, providing cycle records which can be saved for future reference. Three paper tape rolls and two printer ribbons are furnished with each unit.

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 through the operating end touch screen. 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** – AM/PM or 24-hour notation.
- **Access Code** – requires entry of a four-digit access code to operate the sterilizer and/or change the cycle values. 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 or main menu screen, denying user access to the sterilizer or programming.
- **Audible Signals** are adjustable. **Touch Pad** and **end-of-cycle signals** can be adjusted to one of four sound levels (off, low, medium, or high) as required for the operating environment. **Alarm signal** can be adjusted to low, medium, or high (it cannot be turned off).
- **Print Format** – allows selection of either a full or condensed printout of the cycle information during processing.
- **Temperature Display and Printout Units** – Fahrenheit (°F) or Celsius (°C). Temperature is set, displayed, controlled, and printed to the nearest 1°. Recalibration is not required when changing temperature units.

- **Pressure/Vacuum Display and Printout Units** – psig/In Hg or bar. Recalibration is not required when changing pressure units.

Technical Data

Control system consists of microcomputer control boards and peripheral function circuit boards, located within the control PC board housing.

An **internal battery** backs up all cycle memory for up to 10 years. If a power failure occurs during a cycle, the battery backup system assures that cycle memory will be retained and proper cycle completion will occur once power is restored. When power is lost, the cycle is held in phase until power is restored, exceeding the minimum government specification of 1 minute. Once power returns, the event is recorded on the printout and the cycle automatically resumes or restarts, depending on what phase the cycle was in at the time of power loss. If necessary, the operator can manually abort the cycle.

SAFETY FEATURES

Control lockout switch – equipped on chamber door, senses when door seal is energized and tight against the door. Control prevents cycle from starting until the limit switch signal is received. If control loses 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 the vessel chamber.

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

Power door safety feature – causes door drive to slip if the sliding door encounters an obstruction during its movement.

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 door end. On single door units, back of chamber is fitted with welded, 316L stainless-steel dished head.

Sterilizer vessel is ASME rated at 45 psig (3.1 bar) and insulated. Vessel includes one 1"-NPT chamber port for customer use.

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

Chamber Door(s)

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 a special long-life rubber compound. When sterilize cycle is complete, the seal retracts under vacuum into a machined groove in the sterilizer's end frame.

A long-life proximity switch is used by the control to determine if door is closed or locking plates are engaged. An additional seal pressure switch prevents inadvertent cycle initiation if door is not sealed.

The door assembly is equipped with a mechanical locking mechanism that ensures 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.

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

Chamber Drain System

Drain system is designed to prevent sterilizer effluent from entering into the water-supply system and sterilizer. The 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 the waste line RTD to minimize water usage. Water supply shut off valve is located in the recessed area of the unit.

Vacuum System

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

Steam Source

Sterilizers are 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 shut-off valve, steam strainer, and a pressure regulator.

Piping

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

- **Solenoid Valves** with DIN connectors simplify sterilizer piping and can be serviced individually.
- **Manual Shut-off Valves** are pressure rated at 125 psig (8.62 bar) for saturated steam. Valve handles are low-heat conducting.

MOUNTING ARRANGEMENT

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

On freestanding units, stainless-steel side panels and a louvered top panel enclose the sterilizer body and piping.

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 36" (914 mm) sterilizers. See separate product literature for details.

PREVENTIVE MAINTENANCE

A global network of skilled service specialists can provide periodic inspections, and adjustments to assure low-cost peak performance. STERIS representatives can provide information regarding Annual Maintenance Agreements.

NOTES

1. The sterilizer is not supplied with a vacuum breaker or back-flow prevention device and, where required by local codes, installation of such a device in water line is by others.
2. Pipe sizes shown indicate terminal outlets only. Building service lines, provided by others, must supply the specified pressures and flow rates.
3. Disconnect switches (with OFF position lockout only; by others) should be installed in electric supply lines near the equipment.
4. Access to the recessing 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 sterilizer at each door.

7. Floor drain should be provided within confines of sterilizer framework.
8. Units require minimum 38" (966 mm) door opening for transport within facility prior to installation.

UTILITY REQUIREMENTS

Steam (S)

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

Drain (D)

2" ODT drain terminal. (Floor drain capacity must handle peak water consumption; refer to Engineering Data.)

Electrical – Controls (EC)

120 Volt, 50/60 Hz, 1-phase, 2.0 A.

Electrical – Vacuum Pump (VP)

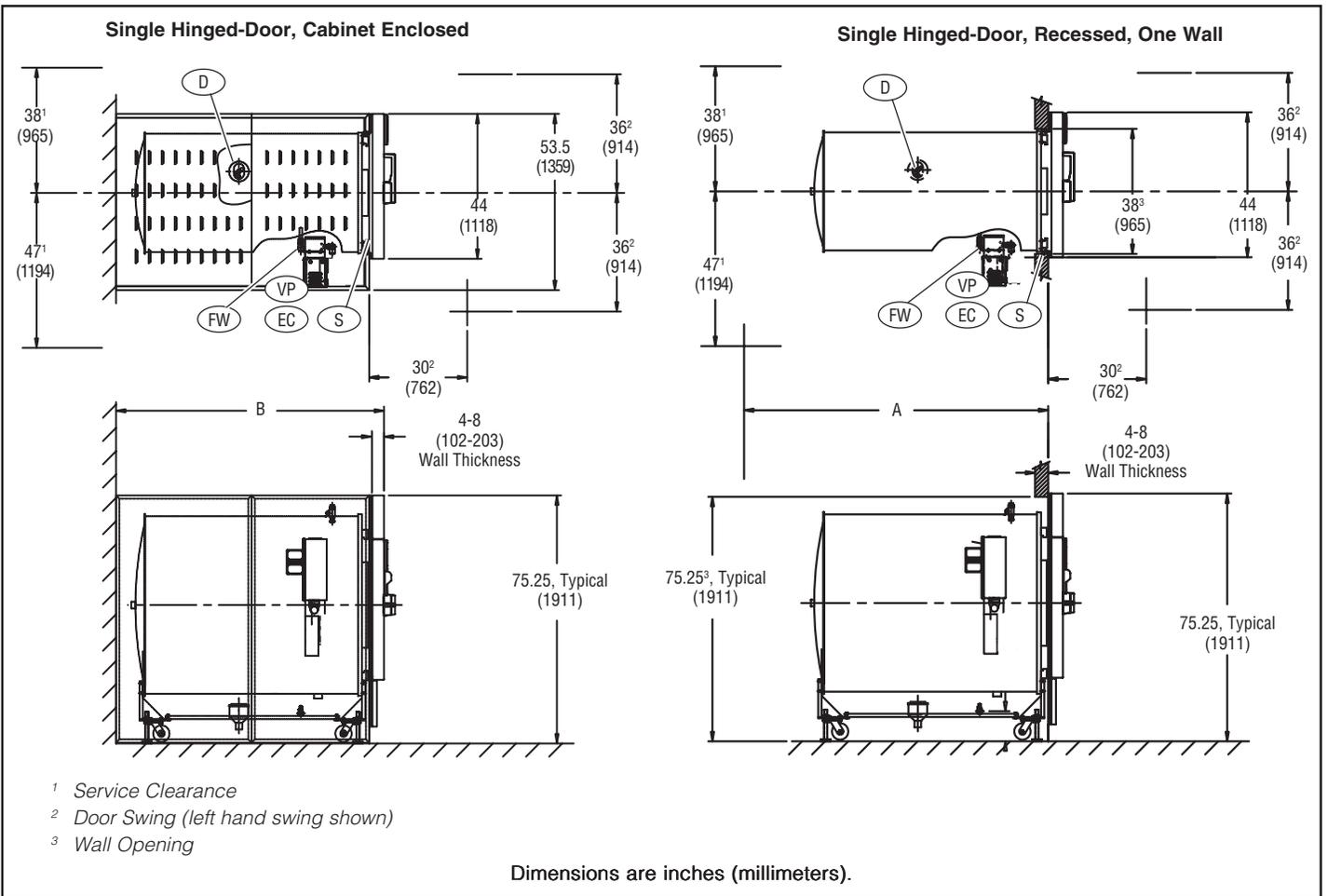
- 208/240 Volt, 50/60 Hz, 3-phase, 6 A per phase.
- 480 Volt, 50/60 Hz, 3-phase, 3 A per phase.

Sterilizer Feed Water (FW)

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 *Water Quality Recommendations* listed on page 7.

NOTE: Back-flow prevention is by others; not supplied on unit.

... CHECK LOCAL CODES ...



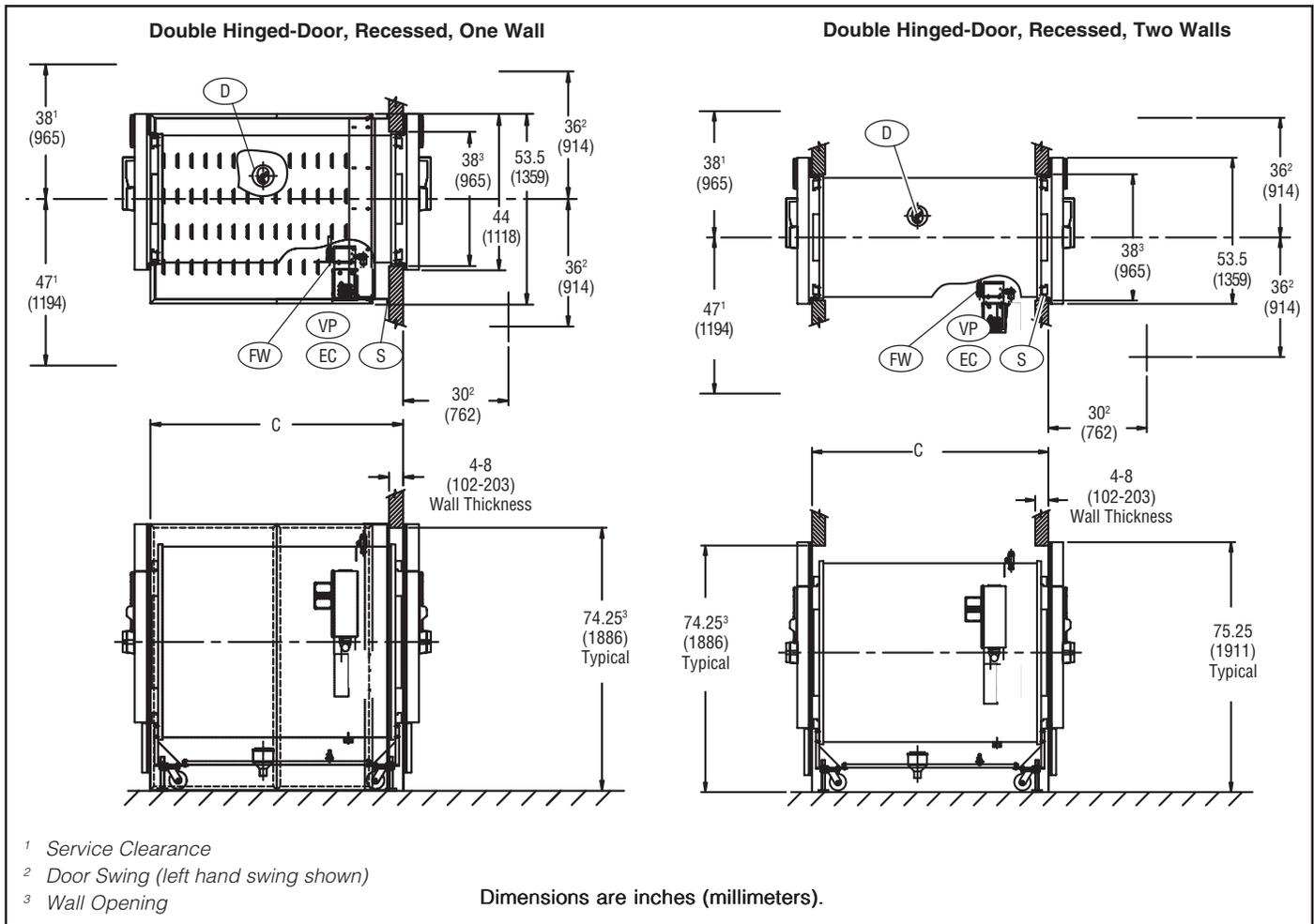
ENGINEERING DATA

Drain:	2" ODT drain terminal (Floor drain capacity must handle peak water consumption.)	
Electric:	Control: 120 volt, single phase, 50/60 Hz, 2 A Vacuum Pump • 208/240, 3 phase, 50/60 Hz, 6 A per phase, or • 480 volt, 3 phase, 50/60 Hz, 3 A per phase	
Steam:	Pressure – 50 to 80 psig (3.45 to 5.52 bar), dynamic, condensate free, and 97 percent to 100 percent vapor quality Consumption – 185 lbs/hr (84 kg/hour) Peak Flow – 335 lbs/hr (152 kg/hour) Size – 1" NPT	
Water:	Pressure – 20 to 50 psig (1.38 to 3.45 bar), dynamic Consumption – 130 gal/hr (495 L/hour) Peak Flow – 15 gal/min (57 L/min) Size – 1" NPT	
Operating Weight:	26 x 37.5 x 36" (660 x 950 x 910 mm)	3800 lb (1720 kg)
	26 x 37.5 x 48" (660 x 950 x 1220 mm)	4200 lb (1900 kg)
	26 x 37.5 x 60" (660 x 950 x 1520 mm)	4700 lb (2125 kg)

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.



OVERALL INSTALLED LENGTH

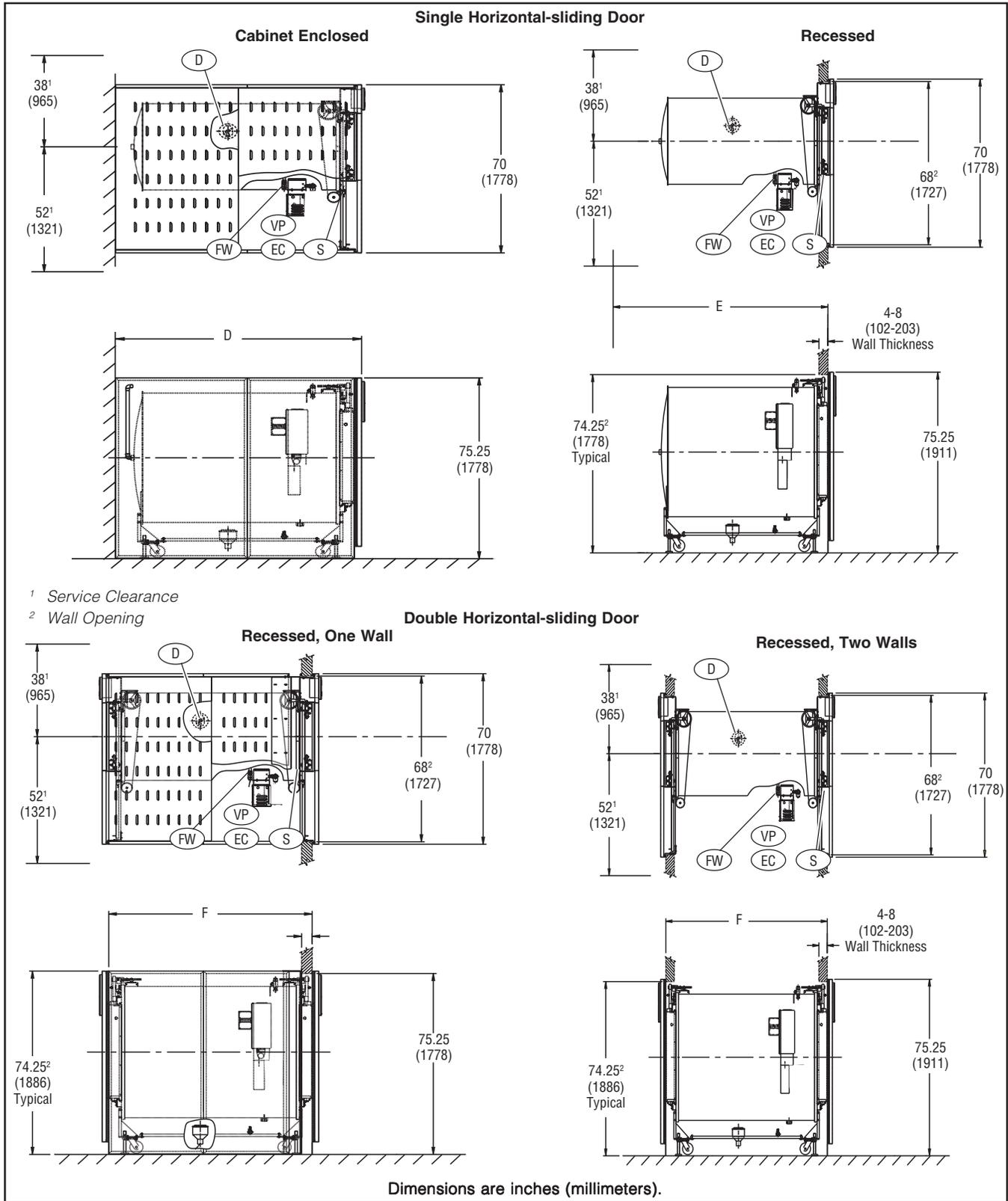
Refer To Illustrations.
 Dimensions are inches (mm).

	Chamber Length		
	36 (914)	48 (1219)	60 (1524)
A	69 (1753)	81 (2057)	93 (2362)
B	58 (1473)	70 (1778)	82 (2082)
C	48 (1219)	60 (1524)	72 (1829)
D	59 (1499)	71 (1803)	83 (2108)
E	71.5 (1816)	83.5 (2121)	95.5 (2425)
F	53.25 (1352)	65.25 (1657)	77.25 (1962)

WATER QUALITY RECOMMENDATIONS

Recommended Feed Water Quality for Sterilizers		
Condition	Nominal Conditions	Maximum Conditions
Temperature	40°-60°F (4°-16°C)	70°F (21°C)
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

NOTE: Because of STERIS's continuing program of research and development, all specifications and descriptions are subject to change without notice. Some options may affect utility consumptions. Obtain certified drawings for design and installation.



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