400 HC & 500 HC SERIES GRAVITY & VACUUM/GRAVITY STEAM STERILIZERS FOR HEALTHCARE APPLICATIONS

PRODUCT SPECIFICATION

PRODUCT
Both the 400HC Series and 500HC Series Sterilizers consist of two models. The 422HC and 522HC Gravity Steam Sterilizers employ gravity/downward displacement with positive pulse conditioning and the 433HC and 533HC Vacuum/Gravity Steam Sterilizers employ both gravity/downward displacement with positive pulse conditioning and pressure/vacuum pulsing for dynamic air removal. Up to 22 cycles can be easily accessed in two easy steps. Custom cycle names can be designated for each cycle during installation. All cycle phases are sequenced and monitored by the control system, providing both audible and visual notification of deviation from certain operating parameters.

APPLICATION
For general-purpose gravity or vacuum steam sterilization of hospital instruments and supplies. The selectable temperature range is from 230°F to 275°F (110°C to 135°C) and from 219°F to 275°F (104°C to 135°C) for liquid cycles. Typical applications include wrapped and unwrapped porous and non-porous hard goods, gowns or towel packs and liquids in self-venting or unsealed containers. The liquid exhaust is microcomputer controlled for linear and consistent liquid cool down, programmable within a specified range.

MODEL SELECTION
400HC Series  17.5'' (445 mm) x 17.5'' (445 mm) x 26'' (660 mm), 4.6 Cu Ft (130 L)
☐ 422HC Gravity Steam
☐ 433HC Gravity and Vacuum Steam

500HC Series  21'' (532 mm) x 21'' (532 mm) x 38'' (965 mm), 9.7 Cu Ft (275 L)
☐ 522HC Gravity Steam
☐ 533HC Gravity and Vacuum Steam

DOOR SELECTION
☐ Manual
☐ Power (400 Series Double Door, Special Order)

SINGLE DOOR MOUNTING
☐ Recessed
☐ Cabinet

DOUBLE DOOR MOUNTING
☐ Cabinet, recessed one end
☐ Recessed both ends (500HC Series Only)

CONTROL PANEL LOCATION
☐ On Unit
☐ Wall Mounted, vertically

STEAM SOURCE
☐ House steam
☐ 30 kW integral steam boiler with an automatic feed water pump as standard (not available with double door 400HC Series Models)
☐ 208V 3Ph
☐ 240V 3Ph
☐ 480V 3Ph
☐ 380/415V 50Hz 3Ph
☐ 600V 3Ph

LANGUAGE (Select one)
☐ English
☐ French
☐ Spanish

OPTIONS
☐ Boiler Control and Safety Device (CSD-1). Satisfies state ASME requirements for secondary low water cut-off per local jurisdiction.
☐ Uninterrupted Power Supply (UPS). Provides 115V power for up to 30 minutes to complete a cycle in process.
☐ Automatic Steam Boiler Blowdown
☐ ASME Blowdown Separator
☐ T-DOC Digital data-logging software
INTERIOR EQUIPMENT
- Rack with two shelves
  - Extra third shelf – 400HC Series
  - Extra third shelf – 500HC Series
- 500HC Series Loading Car, with interior track
- 500HC Series Transfer Carriage

QUALITY STATEMENT
Confidence in the Getinge Group is the most important quality criterion. This must be the hallmark of all our external and internal commitments, activities and products. Products and services supplied by Getinge must conform to the agreed terms and expectations to ensure recommendations for further business. The achievement of these quality goals is the basis for a continued competitive and successful enterprise.

STANDARDS AND CODES
The sterilizer shall comply with or meet the requirements of:
- ASME (Section VIII, Division 1) Code for Pressure Vessels
- Canadian Registration Number (CRN) Pressure Vessel Design
- Uniform Plumbing Code
- ETL Listed to UL 61010A-1 and UL 61010A-2-041
- ETL Listed to IEC 61010-1 and IEC 61010-2-041
- cETL Listed to CSA C22.2 Nos. 1010.1 and 61010.2.041
- Seismic Anchoring Requirements per California Building Code (2001)
- Cycle Performance Validated to ANSI/AAMI ST8 & ST37

STANDARD SAFETY FEATURES
- Steam Interlock Door Switch prevents steam from entering the chamber when the door is not sealed.
- Steam Safety Valve(s)—There are Steam Safety Relief valve(s) which ensures that the pressure in the chamber and/or jacket do not overpressurize.
- Door obstruction shut-off. If the automatic door encounters an obstacle, a safety clutch stops the door movement and after a short time-out the motor is shut down.
- Analog chamber gauges. Two needle-style gauges give real-time pressure readings in the chamber and jacket even in the event of micro-computer control system outage.
- Program check. The control system validates all user-programmed cycle parameters against safe effective cycle recommendations. A warning appears if user’s attempt to program a cycle beyond recommended parameters.
- Supervisor password. A supervisor password is required to change cycle names or parameters.
- Abort alert. Aborted cycles result in a warning message that requires operator intervention before the chamber can be reopened.
- Gasket retract valve. In the event emergency access to the chamber becomes necessary the gasket may be retracted manually.
- Door safety baffle. In the unlikely event of a catastrophic door failure, gasket will blow out and a baffle at the chamber mouth directs steam away from areas where operators might be working.
- Heat guards and insulation. Insulation and heat guards are built in on all surfaces where operators routinely come into contact, particularly near the door, and chamber openings.
- Water alarm. High water levels in the drain that cannot be corrected automatically result in an audible alert.

MICROCOMPUTER CONTROLS
Getinge Sterilizers employ a Hitachi 20 MHz microprocessor on a dedicated controller (CPU) with 8 MB of RAM. The control panel consists of an operator interface panel (called OP30), a thermal printer, mechanical chamber and jacket pressure gauges, status indicators, active touch sensitive switches, and controls On/Off switch.

Controls are located above the door for convenience. An internal deflection barrier routes steam vapor and moisture away from the door and behind the electronic controls to maintain temperatures at or below temperature limits. If specified, the control panel can be located remotely from the sterilizer with up to 32.8 feet (10 m) of cable. An RS 232 port is provided for serial communications for central data collection or remote service analysis and is ready for T-DOC® connection. The OP30 operator interface panel is a durable 1/4 VGA 5.7 inch diagonal color screen with 320 x 240 pixels. Below the screen are five soft keys to access other screens or displays and to make changes to cycle parameters.

A screen saver extends the life of the backlit LCD. Touching any key illuminates and reactivates the display. Push-button switches, with international symbols and descriptive words, provide door seal and unseal or, if a power door is furnished, vertical movement of the door. Audible and visible operator feedback is provided when a selection is made or a fault message is displayed. Temperature can be set, controlled and displayed in degrees Celsius or Fahrenheit and pressure in psia, bar or kPa. Double door models have one printer and a complete OP30 Operator Interface at both ends of the sterilizer for full control capabilities at either door.

The temperature of the discharge water is controlled by a temperature device to be less than 140°F (60°C). This switch also conserves water usage. The chamber drain is continuously monitored for the presence of water during a cycle. If water is detected and cannot be automatically corrected, a high water alarm alerts the operator.

CYCLE DOCUMENTATION
The printer documents cycle performance using special thermal paper for a permanent record. Thermal printing allows for quiet operation. At cycle completion, a cycle performance record is printed. Paper is replaced by a “drop in and quick feed” method and the printed strips can be either accumulated on an automatic take-up reel, or torn off for individual cycle storage. A last cycle duplicate print and paper feed switch is provided. The printer is located on the control panel and documents the following on a 200-dpi dot matrix printer (1.88” [47.6 mm] wide print width):
- Process start time and date, sterilizer name and number, daily cycle number and total cycle count
- Cycle selected with time and temperature, with other adjustable parameters identified
- Cycle phase transition points, temperature, pressure and total cycle time
• Process fault information messages with time of occurrence
• Parameter Check provides a calculated, numeric process lethality.
• Summary verification of time at selected temperature (min/max exposure values)
• Cycle verification signature line

OP30 Operator Interface Features
The OP30 color screen is divided into specific sections to display selection and performance information in a consistent manner. The top section identifies the time and temperature selected for the cycle. Below that is the type of cycle selected. The middle portion provides a choice of three screens to view actual, real time cycle information. “Pop-up” dialog boxes to change values appear within parameter selection screens to implement changes. Parameter Check feature is used to verify selected exposure time and exposure temperature settings are within an allowable range. If time and temperature is selected below factory recommended values, a message will be displayed. Parameters are password protected.

The three screens are:

◆ **Detail.** Displays real time process information in text form.

```
<table>
<thead>
<tr>
<th>Time</th>
<th>Temperature</th>
<th>Drying Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>00:00:00 275.0 F</td>
<td>00:20:00</td>
<td></td>
</tr>
</tbody>
</table>

P1 vac PREVAC1
01 STANDBY
01:12:44
Chamber Temp: 84.4 F
Cham Press/PSIG: 0.00 PSI
Jacket Temp: 274.9 F
Atmosphere PSIA: 14.25 PSI
Chamber PSIA: 14.25 PSI
Steam Table Diff: -13.28 PSI
Exp. Temp Max: 275.6 F
```

◆ **Plot Graph.** Displays cycle temperature and pressure in colored graph during a cycle.

```
<table>
<thead>
<tr>
<th>Time</th>
<th>Temperature</th>
<th>Drying Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>00:10:00 135.0 C</td>
<td>00:20:00</td>
<td></td>
</tr>
</tbody>
</table>

P8 grav GRAVITY1
02 DRYING
00:38:15
Chamber Temp: 87.4 C
Chamber PSIA: 0.34 PSI
```

◆ **Bar Graph.** Displays temperature and pressure in a bar graph, with a large, easy to read, time remaining to the end of the cycle (averages the last three cycles for each cycle type).

<table>
<thead>
<tr>
<th>Time</th>
<th>Temperature</th>
<th>Drying Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>00:03:00 275.0 F</td>
<td>00:00:10</td>
<td></td>
</tr>
</tbody>
</table>

P14 f 3 FLASH3+
02 EXPOSURE
00:06:46
Chamber Temp: 275.5 F
Chamber PSIA: 46.02 PSI
```

The lower portion of the screen provides text alarm messages and non-critical system messages, both using color displays, and soft key identifications. Navigating the various screens is accomplished by use of soft keys, directional arrows to move the cursor and change values, and the Enter key. Up to 22 factory recommended cycles are available. Time and temperature can be changed using a quick edit feature. Each change prompts operator acceptance by the use of a Yes/No acknowledgement and a “Save” soft key.

For Supervisor access, an alpha-numeric display provides levels of access for individual operators and service. Using the soft key labeled “Setup” provides the ability to:

• select operating screens
• print the last cycle (a printer function)
• adjust system menu for setting the calendar and to establish users
• establish passwords for each operator
• access the “about” selection to identify the model and system software number
• choose language, date format, and temperature and pressure measurement
• adjust parameters through password access

The supervisor can also select a Utilities Control feature, which provides a seven-day timer for programmed startup and shutdown of the sterilizer. The Utilities Control System shifts off water and steam to the unit to conserve energy (including the integrated steam generator). Cycles running beyond the programmed shutoff time will be completed. Finally, an optional Automatic Steam Boiler Blowdown System can be programmed to blow down the steam boiler automatically once a day, while cooling hot condensate through internal piping. This is typically scheduled during off-peak time.
The factory recommended cycles are:

**MODELS 422HC and 522HC (14 total cycles)**
- 3 Gravity cycles of 30 minutes exposure at 250°F (121°C) with 30 minutes dry time
- 3 Gravity cycles of 10 minutes exposure at 275°F (135°C) with 30 minutes dry time
- 4 Gravity Flash* cycles for non-porous items of 3 minutes exposure at 275°F (135°C) with 10 seconds dry time
- 2 Gravity Flash* cycles for porous and non-porous items of 10 minutes exposure at 275°F (135°C) with 10 seconds dry time
- 2 Liquid** cycles at 250°F (121°C), with one for 30 minutes exposure, and one at 45 minutes

**MODELS 433HC and 533HC (22 total cycles)**
- 3 Gravity cycles of 30 minutes exposure at 250°F (121°C) with 30 minutes dry time
- 3 Gravity cycles of 10 minutes exposure at 275°F (135°C) with 30 minutes dry time
- 6 Pre-Vacuum cycles of 3 minutes exposure at 275°F (135°C), with the following applications:
  - Zero dry time for unwrapped porous or non-porous items
  - 3 minutes minimum dry time for single wrap instruments or a load of linen
  - 16 minutes minimum dry time for mixed loads of wrapped instruments and linen
- 4 Gravity Flash* cycles for non-porous items of 3 minutes exposure at 275°F (135°C) with 10 seconds minimum dry time
- 2 Gravity Flash* cycles for porous and non-porous items of 10 minutes exposure at 275°F (135°C) with 10 seconds dry time
- 1 Bowie-Dick Test cycle of 3.5 minutes exposure at 273°F (134°C) with zero dry time
- 1 Vacuum Leak Test cycle run at 268°F (131°C).
- 2 Liquid** cycles at 250°F (121°C), with one for 30 minutes exposure, and one at 45 minutes

*Note: Selection of time and temperatures other than factory recommendations require operator verification of the cycle efficacy. Factory recommended cycles were validated to ANSI/AAMI ST8 and ST37.

*Steam sterilization by the unwrapped (Flash) method is employed when time does not permit the use of the preferable, wrapped sterilization procedure. Implantables should never be sterilized by the unwrapped method.

**The liquid cycle, if used, is not intended for the sterilization of liquids used directly for patient contact.

**PERFORMANCE**

When installed and connected to specified utility services, the system provides accurate and repeatable performance. During the timed exposure phase, the temperature will be controlled by the chamber sensor at 0.9°F (0.5°C) above the set point (±0.2°C). Temperature selectivity is in 0.1°F (0.1°C) increments. Timing functions are selectable in one-second increments, and accuracy is within 0.04%. Temperature is controlled by a time proportioning continuous algorithm, called Proportional Integral (PI). A battery with a 10 year life holds programmed cycle values in memory. In the event of a power interruption, current cycle status is stored for up to 1 minute.

**CYCLE PROGRESSION**

- **Gravity/Wrapped Goods (pressure pulse pre-conditioning)**
  a. **Conditioning**—steam flows into the chamber for a timed period, followed by a series of positive pressure pulses to remove chamber air.
  b. **Heat-Up**—to selected temperature.
  c. **Exposure**—selected chamber temperature is attained and timed.
  d. **Exhaust**—chamber vented to atmospheric pressure.
  e. **Dry**—filtered air is drawn through chamber for the duration of time selected. (Either Gravity or Vacuum Dry is selectable; Vacuum Dry is recommended.)
  f. **Cycle Complete**—signaled by a tone, display message and light.

- **Prevac/Wrapped Goods (vacuum/pressure pulsing pre-conditioning)**
  a. **Conditioning**—steam flows into the chamber for a timed period, followed by a series of pressure/vacuum pulses to remove chamber air.
  b. **Heat-Up**—to selected temperature.
  c. **Exposure**—selected chamber temperature is attained and timed.
  d. **Exhaust**—chamber vented to below atmospheric pressure.
  e. **Dry**—a vacuum is created for the duration of the time selected. Filtered air is admitted at the end of the drying time, chamber to atmospheric pressure.
  f. **Cycle Complete**—signaled by a tone, light and display message.

- **Prevac/Unwrapped Goods (vacuum/pressure pulsing pre-conditioning)**
  a. **Conditioning**—steam flows into the chamber for a timed period, followed by a series of pressure/vacuum pulses to remove chamber air.
  b. **Heat-Up**—to selected temperature.
  c. **Exposure**—selected chamber temperature is attained and timed.
  d. **Exhaust**—chamber vented to below atmospheric pressure.
  e. **Dry**—typically, not required for the unwrapped vacuum cycle.
  f. **Cycle Complete**—signaled by a tone, light and display message.
• Gravity/Unwrapped Goods (3 minutes for nonporous items or 10 minutes for porous items)
  a. Conditioning—steam flows into chamber for a timed period to remove air. The 10-minute Flash cycle for porous items has a series of positive pulses for dynamic air removal.
  b. Heat-Up—to selected temperature.
  c. Exposure—selected chamber temperature is attained and timed.
  d. Exhaust—chamber vented to atmospheric pressure.
  e. Dry—filtered air is drawn through chamber for the duration of time selected.
  f. Cycle Complete—signaled by a tone, light and display message.

• Liquids—
  a. Conditioning—steam flows into chamber for a timed period to remove air.
  b. Heat-Up—to selected temperature.
  c. Exposure—selected chamber temperature is attained and timed.
  d. Exhaust—an adjustable linear exhaust.
  e. Cycle Complete—signaled by a tone, light and display message.

### CONSTRUCTION

The chamber is constructed of an inner shell reinforced by a series of “U” channels that form the outer jacket of the chamber. The gasket ring and backhead (on single door models) are formed and welded to the chamber body. Chamber, door, and jacket material is constructed of stainless steel, 316. The interior chamber finish is polished to a high luster finish. All pressure vessel construction meets ASME code requirements for working pressures up to 45 psig (310 kPa). The gasket ring holds a continuous, one-piece silicone gasket, 0.63” (16 mm) in diameter. The body assembly is thermally insulated with 1.5” fiberglass insulation and is double thick between the jacket “U” channels.

A steam baffle is provided to prevent condensation from wetting the load. An extra threaded opening permits passage of thermocouple leads to monitor interior and load temperatures. Steam connection to the chamber and jacket is 316 material. A manual gasket retract valve is provided for emergency chamber access. When rack and shelves are supplied, shelf adjustments will be approximately every 2.5” (63.5 mm). Individual rack supports and shelves are easy to remove for cleaning.

### VERTI-GLIDE DOOR

The vertical sliding door is counterbalanced for ease of operation. When open, it is totally out of the way, allowing safe and complete access to the chamber. Opening or closing the manual door requires only gentle upward or downward hand pressure. The optional Power Door is operated by a foot switch, and the door will stop automatically if an obstruction is encountered. If the foot switch is actuated while the door is opening or closing, the direction will be reversed. The Power Door can be opened or closed manually. At the beginning of the cycle, steam pressure behind the gasket automatically seals the door and retracts automatically at the end of the cycle. Sealing is positive and consistent. The gasket is recessed for added protection and long life. Once the cycle begins and the chamber is pressurized, the door cannot be opened. A safety switch prevents steam from entering the chamber when the door is not in the sealed position. The door is insulated with fiberglass insulation and covered with a stainless steel panel.

### PANELING

The front paneling is constructed of nominal 0.050” (1.27 mm) 300 series #3 brushed finished stainless steel and is hinged for easy access to components, the manual gasket retract valve and, if specified, the electric steam boiler. The trim panels are built-in to fit within a recessed wall or optional cabinet. When specified, the cabinet model will be made of the same material.

### INTEGRAL STEAM BOILER

The steam boiler will have a 30 kW capacity at standard voltages, and be integral with an automatic fill valve to ensure the correct water level at all times. The sterilizer control on/off switch controls the boiler control power (115V). The steam boiler is automatically controlled to generate and maintain a supply of steam to the sterilizer at minimum of 40 psig (3.72 bar). An automatic feedwater pump is provided as standard.

### STEAM BOILER CONTROLS AND FEATURES

The integral steam boiler heating system includes:

1. On-off selector switch with power light. Control power will be removed from the steam boiler when “control off” is selected.
2. An adjustable pressure control.
3. Adjustable over-pressure cutoff.
4. Automatic fill valve to maintain the correct water levels at all times.
5. An ASME, UV rated 100-psi pressure relief valve.
7. A high-water cutoff safety feature prevents water from entering the sterilizer.
8. Full-size, stainless steel drip pan with leak detection and automatic system shutdown.
9. During the blowdown function for either manual or automatic operation, hot condensate flows through the lower piping condenser and is condensed by cold water.

### OPTIONS

10. Low water kit to meet ASME CSD-1 requirements per local jurisdictions.
11. An automatic blowdown that incorporates a motorized ball (shutoff) valve that automatically uses steam pressure to minimize mineral accumulation in the steam boiler. The seven-day timer allows the user to select a time each day to schedule the blowdown function.
WARRANTY
Getinge USA, Inc. warrants that each sterilizer is carefully tested, inspected and leaves the factory in proper working condition, free from visible defects. Sterilizers are warranted for one year from the start of the warranty, including parts and labor (excluding expendable parts). The ASME pressure vessel is further warranted to the original owner against structural failure for a period of 15 years from the date of initial operation. See warranty pamphlet for complete details.

ENVIRONMENTAL IMPACT
Getinge steam sterilizers are designed and constructed with our environment in mind. To aid in the conservation of natural resources, and in recognition of prevailing Environmental Policies, in particular ISO 14001, Getinge steam sterilizers are more than 90% (by weight) recyclable.

Under normal operation, Getinge steam sterilizers produce no harmful byproducts. The Getinge steam sterilization process, in and of itself, produces nothing more dangerous than hot drain water.
Safe and efficient operation of this product is dependent upon the owner/user providing the services specified herein as well as any other normally accepted electrical, mechanical or plumbing interface between user's supply and this product. Getinge USA will not assume responsibility for problems that result from non-compliance with the above conditions. The following conditions and services are required by Getinge USA equipment and are to be provided by others.

**TABLE A: PLUMBING CONNECTIONS & UTILITIES**
(Refer to notes 1–6 on sheet 4)

<table>
<thead>
<tr>
<th>ON UNIT CONNECTION</th>
<th>PIPE SIZE TO UNIT</th>
<th>PRESSURE RANGE DYNAMIC AT UNIT</th>
<th>FLOW RATE MAX</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steam 3/4&quot; (19) NPT female see note 4</td>
<td>3/4&quot;(19) NPT</td>
<td>40–50 psig (2.8–3.5 kg/cm²)</td>
<td>96 lbs./hr (44 kg/HR)</td>
</tr>
<tr>
<td>Cold water 3/4&quot; (19) NPT female see note 1</td>
<td>3/4&quot;(19) NPT</td>
<td>30–60 psig (2.1–4.2 kg/cm²)</td>
<td>6 gpm (1.4 m³/hr)</td>
</tr>
<tr>
<td>Drain 1 1/2&quot; (38) O/D</td>
<td>See note 3</td>
<td>Not applicable</td>
<td>See note 3</td>
</tr>
<tr>
<td>Hot water 3/8&quot; (10) NPT female see note 2</td>
<td>1/2&quot;(13) NPT</td>
<td>20–50 psig (1.4–3.5 kg/cm²)</td>
<td>0.4 gpm (0.09 m³/hr)</td>
</tr>
<tr>
<td>SV1 (Chamber) SV2(Jacket) = Sterilizer vessel pressure relief valve vent 3/4&quot; (19) NPT female</td>
<td>See note 5</td>
<td>Not applicable</td>
<td>See note 5</td>
</tr>
<tr>
<td>SV3 = Steam Boiler pressure relief valve vent 1&quot; (25) NPT female</td>
<td>See note 5</td>
<td>Not applicable</td>
<td>See note 5</td>
</tr>
<tr>
<td>AS= Compressed Air dry, filtered, oil-less (BSF/CGB only) (see sheets 5&amp;6)</td>
<td>1/4&quot; (7) NPT</td>
<td>70–100 psig dynamic (4.9–7.0 kg/cm²)</td>
<td>1 SCFM</td>
</tr>
</tbody>
</table>

**TABLE B: ELECTRICAL CONNECTIONS & UTILITIES**
(Refer to note 7 on sheet 4)

<table>
<thead>
<tr>
<th>SERVICE</th>
<th>CONDUCT SIZE</th>
<th>UTILITY NOMINAL VOLTAGE</th>
<th>UTILITY VOLTAGE RANGE</th>
<th>MAX. CURRENT NOMINAL VOLTAGE</th>
<th>Breaker/Fusing Recommended</th>
<th>Consumption</th>
</tr>
</thead>
<tbody>
<tr>
<td>E1= Power Box</td>
<td>1/2&quot; (13)</td>
<td>115V, 50/60 Hz, 1–</td>
<td>12 A</td>
<td>15 A</td>
<td>250 W/HR</td>
<td></td>
</tr>
<tr>
<td>E2= Integral Transformer Box</td>
<td>1/2&quot; (13)</td>
<td>230V, 50/60Hz, 1–</td>
<td>5 A</td>
<td>15 A</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>K= Electric 4 WIRE WITH GROUND (for units with integral Steam Boiler, not available on 400 Double Door)</td>
<td>1 1/4&quot; (32)</td>
<td>208V, 50/60Hz, 3–</td>
<td>188 – 216V</td>
<td>84 A</td>
<td>100 A</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1&quot; (25)</td>
<td>240V, 50/60Hz, 3–</td>
<td>217 – 250V</td>
<td>73 A</td>
<td>100 A</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1&quot; (25)</td>
<td>380V, 50Hz, 3–</td>
<td>374 – 432V</td>
<td>46 A</td>
<td>60 A</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1&quot; (25)</td>
<td>415V, 50Hz, 3–</td>
<td>374 – 432V</td>
<td>42 A</td>
<td>60 A</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3/4&quot; (19)</td>
<td>480V, 60Hz, 3–</td>
<td>432 – 500V</td>
<td>36 A</td>
<td>50 A</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3/4&quot; (19)</td>
<td>600V, 60Hz, 3–</td>
<td>540 – 625V</td>
<td>29 A</td>
<td>40 A</td>
<td></td>
</tr>
<tr>
<td>VP= vacuum pump motor (3HP) junction box. 4 WIRE WITH GROUND (Model 533LS only, w/o steam boiler)</td>
<td>1/2&quot; (13)</td>
<td>208V, 60Hz, 3–</td>
<td>5.7 A</td>
<td>10 A</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>230V, 60Hz, 3–</td>
<td>5.4 A</td>
<td>N/A</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>380V, 50Hz, 3–</td>
<td>2.8 A</td>
<td>N/A</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>460V, 60Hz, 3–</td>
<td>2.7 A</td>
<td>N/A</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
NOTES TO ARCHITECTS & CONTRACTORS

1) Cold water:
   a) Cold water quality: Use potable water with a hardness of 0.5–10 grains/gal [8–170 ppm]
   b) Bock–syphonage protection is required by others. Check local plumbing code and install
      backflow preventer. (Examples: Vacuum breaker, dual-check or reduced pressure type).
   c) An optional water booster pump is available:
      - For installations where water pressure is at least 20 psi [1.4 kg/cm²] dynamic but
        less than 35 psi [2.8 kg/cm²].
      - To achieve satisfactory performance with dense loads where dynamic pressure is at
        or below 35 psi [2.8 kg/cm²].
      - If required backflow preventer lowers the water pressure below the minimum specified.
      - The optional booster pump requires mechanical electrical and plumbing hook-up by
        customer. A separate electrical service to the water booster pump junction box is
        necessary. Contact your local Getinge USA representative for Utility Data

2) Hot water is supplied only when integral steam boiler is selected.
   a) Water quality information: For optimum results, the feed water supply should be
      tested prior to initial startup. If the mineral content exceeds the following
      recommended limits, various external treatment processes (water softener, RO, etc.) may
      be used to correct the problem. Routine manual blow-down or automatic blow-down option
      lowers concentrations of impurities and maintains the pH level above 7.0.
   b) Feedwater quality:

   | HARDNESS  | 0.5–5.0 GRAINS/GALLON [8–85 PPM] |
   | RESISTIVITY | NOT TO EXCEED 50 KOHMS/CM |
   | TEMPERATURE | 100°F – 150°F [38°C – 65°C] |
   | TOTAL DISSOLVED SOLIDS | 150 PPM MAX. |
   | pH | 6.8–7.5 |

3) It shall be the customer’s responsibility to provide a proper drainage system in
   accordance with applicable local codes. Temperature of drain water will not exceed
   140°F [60°C] under normal operating conditions. If cold water supply is cut-off,
   temperature may exceed 200°F [93°C].

4) It shall be the customer’s responsibility to provide a condensate free steam between
   97% and 100% saturated vapor.

5) Getinge USA recommends piping all vessel pressure relief valves to a vented
   manifold outside the equipment service area. Caution must be exercised not to reduce
   the drain capacity of the relief valve. Recommended piping practices for relief
   valve piping can be found in ASME Boiler and Pressure Vessel Code Section VII, Div. 1,
   UG–155. Check local codes for special requirements.

6) All customer connections to sterilizer must be labeled. For safety, all shutoff valves must be reachable
   when standing on the floor at the equipment (i.e. water, steam, compressed air).

7) Electrical Supply
   a) It shall be the customer’s responsibility to complete all electrical connections in accordance
      with the National Electrical Code and all applicable local codes.
   b) A dedicated, permanently connected electrical supply with conveniently accessible disconnect
      switch (supplied by customer) is required for each sterilizer service indicated in Table B.
      Where both single phase and 3 phase supply is required, two disconnect switches can be
      used, yet shall be properly labeled and located as close as possible to each other and
      the sterilizer. Refer to the Getinge USA Installation Manual for specific instructions.
   c) For standard 115VAC units, 115VAC supply is required at "E1". For units with the optional
      230V to 115V step-down transformer (integral with sterilizer), 230VAC supply is required at
      "E2" (and no connection at "E1").
   d) For voltages other than 115V or 230V, a separate universal transformer is available to
      provide 115VAC to "E1" with input voltage configurable to 100, 200/208, 380/400/415, or
      440/460/480. It shall be the customer’s responsibility to install the universal transformer.
      Transformer box dimensions: 10"L x 7-1/4"W x 5-3/8"D [254 x 184 x137].
   e) For 500LS units equipped with biological sealing flange or cross contamination barrier (optional),
      see this drawing sheet 5 & 6.

9) Double Door units, recessed into two walls, require partial dis-assembly of unit to allow installation
   into fixed walls.

10) Optional Wall Mounted Control Panel, see drawing no. HS 4088. Cable length to sterilizer not to exceed
    32 feet [9754].

UNIT WEIGHTS AND CRATED MEASUREMENTS TABLE

<table>
<thead>
<tr>
<th>UNIT SIZE</th>
<th>MAX. WEIGHT</th>
<th>CRATED UNCRATED LENGTH WIDTH HEIGHT</th>
</tr>
</thead>
<tbody>
<tr>
<td>400 SINGLE DOOR</td>
<td>965 LBS (438 Kg)</td>
<td>855 LBS (387 Kg)</td>
</tr>
<tr>
<td>400 DOUBLE DOOR</td>
<td>1020 LBS (462 Kg)</td>
<td>910 LBS (416 Kg)</td>
</tr>
<tr>
<td>500 SINGLE DOOR</td>
<td>1223 LBS (554 Kg)</td>
<td>1103 LBS (500 Kg)</td>
</tr>
<tr>
<td>500 DOUBLE DOOR</td>
<td>1288 LBS (586 Kg)</td>
<td>1178 LBS (534 Kg)</td>
</tr>
</tbody>
</table>

FOR INTEGRAL STEAM BOILER ADD 204 LBS (93KG) TO MAX WEIGHT.
ANCHORING DETAILS ON THIS PAGE FOR ALL 400/500 SERIES STEAM STERILIZERS

NOTE:
1) Filled in holes are the holes used for anchoring in that location.

UNIT FRAME

FRONT/WALL (SEE SHEETS 1 & 2)

SEISMIC BRACKET – WS 400 UNIT

LEFT SIDE MOUNTING
(SEE NOTE 1)

SEISMIC BRACKET – WS 500 UNIT

FRONT/WALL (SEE SHEETS 1 & 2)

RIGHT SIDE MOUNTING
(SEE NOTE 1)

UNIT FRAME

400/500 SERIES ROUGHING-IN DRAWING, ANCHORING DETAIL

SERVIE CF 12/20/01 MARKETING TKN 12/20/01 ENDOR AP 12/20/01 CHECK RER 12/20/01 DRAWN BTNL 2/8/08 SCALE NTS

GETTINCE USA, INC.
1777 East Henrietta Road
Rochester, NY 14623-3133

PART NO. HS4083
Getinge provides complete solutions for effective and efficient cleaning, disinfection and sterilization in the healthcare and life science sectors. Our know-how comprises everything from architectural planning, production and handling equipment, to systems for full traceability of sterile goods. Our commitment covers expert advice, training and long-term technical support.