

# TECHNICAL DATA SHEET

## PRIMUS Clinical – Medium Size Sterilizers

*These sterilizers are designed for all Clinical applications including surgery, central sterile supply and clinical laboratories. PRIMUS sterilizers are designed and manufactured in the USA according to Quality Management Systems which are in compliance with ISO 9001:2000, ISO 13485:2003, CDMCAS and FDA's Good Manufacturing Practice (GMP) for Medical Devices: General regulation (21CFR Part 820). Medium size sterilizers are one segment of 12 standard clinical sizes manufactured by PRIMUS.*



F Size - 26"x36"x48" Chamber

### STERILIZER DESIGN

The pressure vessel is the heart of any sterilizer. PRIMUS offers simple straight forward design. All PRIMUS pressure vessels are constructed of solid stainless steel and are fabricated by PRIMUS in our quality controlled ASME facility. The interior chamber surface is polished to a mirror finish of <math><10\mu</math> in. Ra. The brilliant Pri-Mirror® reflective chamber finish sets the highest standard for cleanliness and offers easy spill clean-up and resistance to staining and degradation.

PRIMUS rectangular chambers eliminate the wasted space and high utility costs common to old-style cylindrical or elliptical chambers and jackets. This provides savings in operating cost and service.

All medium sizes of PRIMUS sterilizers have pneumatically powered horizontal operating doors, designed to be efficient, reliable and inherently safe. To close the door, depress and hold the door

button, if button is released door opens. An added safety feature, the doors stop automatically if an obstacle is encountered.

### STERILIZER CYCLES

All PRIMUS Sterilizers include Gravity, Vacuum, and Liquid cycle settings. A Test/Vac cycle is provided for utilizing Bowie-Dick™ tests.

For surgical packs, select one of the vacuum cycles. For the sterilization of liquids in open or vented containers, select a liquid cycle.

The time-tested and reliable PRIMUS PSS500 Microcomputer control is an industrial microprocessor providing accuracy and automation for all for all customer requirements. This simple, versatile control has become the first choice for both sterilizer users and service technicians.



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# PURCHASING SPECIFICATION DATA SHEET

## TECHNICAL DATA SHEET

### GENERAL *(Options italicized)*

All models will include Vacuum, Gravity and Liquids cycles. *A Low Temperature Flowing Steam option provides flowing steam at low temperatures for Clinical laboratories or similar applications.*

### VESSEL MATERIAL AND CONSTRUCTION

The sterilizer will be a double-wall design providing for a fully jacketed pressure vessel. The chamber cross section will be rectangular with width and height dimensions to include:

- W x H x D
- E - 26" x 36" x 39"
- F - 26" x 36" x 48"
- G - 26" x 36" x 60"
- G.1 - 32" x 36" x 48"

The vessel material will be non-laminated solid stainless steel plate/sheet. The chamber, head-ring and door plate material will be 316L stainless steel with an interior Pri-Mirror® finish of <10µ in. Ra.

### DESIGN AND MANUFACTURING APPROVALS

The vessel will be designed and constructed to ASME code Section VIII Division I and pressure rated for 45 PSIG and full vacuum. ASME Code Stamp and U-1 form will bear the name of PRIMUS as the specified US manufacturer.

The sterilizer will be manufactured according to Quality Management Systems which are in compliance with ISO 9001:2000, ISO 13485:2003, CMDCAS, FDA and will be UL listed and in conformance to CSA requirements.

### DOOR CONSTRUCTION

A pneumatically operated horizontally sliding door will be operable from the touchpad push button. To close door, depress/hold door button. If door button is released while door is closing, door reverses direction and opens. In the open position, the insulated door will be secured behind a panel preventing the operator from contact with hot surfaces. An interlock will prevent cycle start unless the door is fully closed and secured.

### GENERAL CONSTRUCTION

The vessel will be insulated with 1" semi-rigid high temperature fiberglass board/blanket insulation overlaid with formed aluminum paneling and mounted in a structural steel frame. The frame will be enamel coated and fitted with adjustable legs on self-centering floor pads. The fascia and side panels will be 16-gauge, type 304 stainless-steel material, removable for easy service access.

### Water Conservation

To conserve water and assure effluent exhausted to drain is 140°F or below, PRIMUS provides quench water on demand for exhaust effluent.

### EQUIPMENT WARRANTY

Sterilizer pressure vessels manufactured by PRIMUS are warranted against defects in workmanship and materials under normal use and operation for fifteen years where the sterilizer is continually maintained under PRIMUS service contract.

### SERVICE AND EQUIPMENT ACCESS

Standard service access, when facing the unit, will be from left side and top. Wiring will be laid side-by-side and mechanically secured flat against metal insulation cover. All wiring shall be clearly labeled and readily visible for visual tracing. Piping components will be threaded rigid brass and flared copper fittings, positioned with sufficient space for removal and replacement without disassembly of the entire piping assembly. Wiring and piping components will be non-proprietary, industrial grade, available through Authorized Service Agencies, local supply house, or direct from PRIMUS.

### STEAM SOURCE

Steam will be from an in-house steam source in the quantity and quality specified. *Optional electric steam boiler may be specified. Contact PRIMUS for additional information.*

### CONTROLS

A PSS500 microcomputer will offer a selection of 8 (eight) separate programs for the sterilization of wrapped goods, hard-goods, liquids and test cycles. Cycle parameters may be set by the users and are adaptable to a wide range of products. Alarms are annunciated, displayed and printed. Cycle process parameters will be displayed and recorded throughout the cycle. A side-mounted control panel and a thermal printer dot-matrix technology, 32 characters per line printing is provided. A copy of the sterilization cycle will be available at the end of the run.

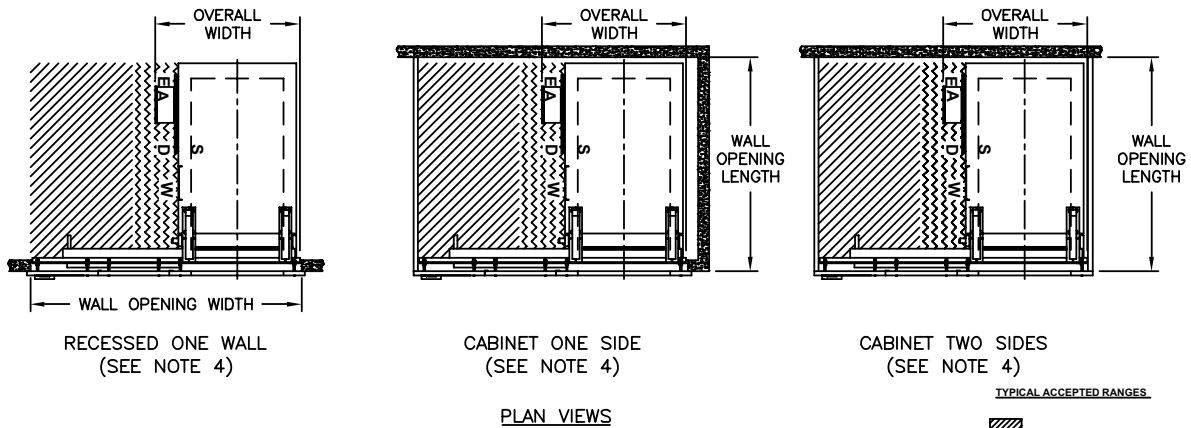
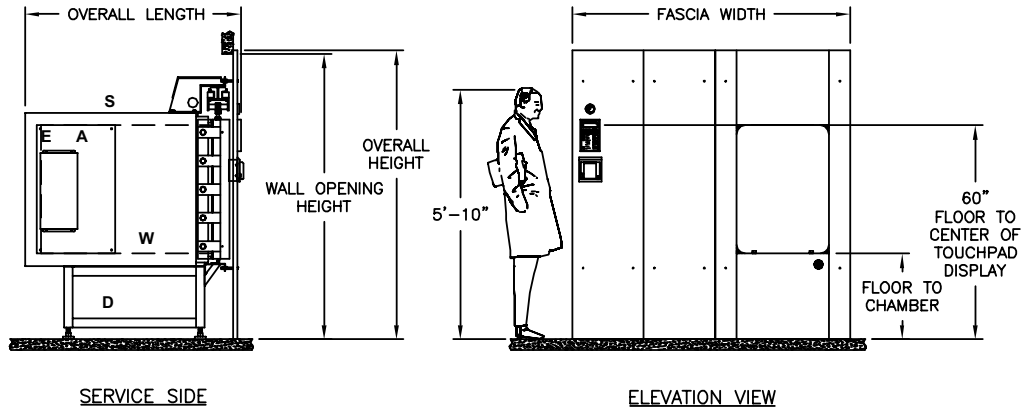


*Standard Control Panel /Printer Arrangement*



# PRIMUS Clinical - Medium Sterilizers

## SINGLE DOOR



## VOLUME/DIMENSIONS CHART

\*Refer to General Arrangement drawings for final connection point to utility services.  
(S-Steam, W-Water, D-Drain, E-Electrical, A-Air)

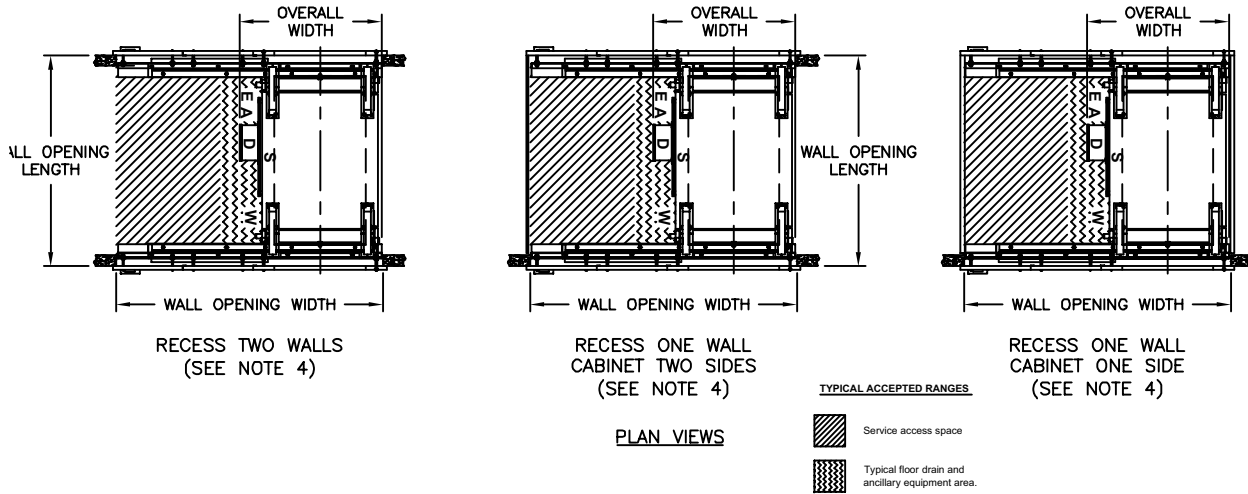
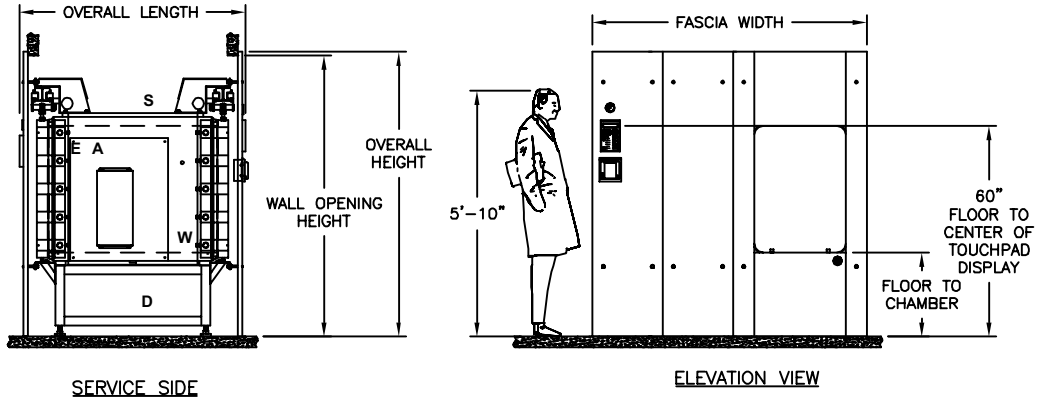
MODEL	E	F	G	G.1
<b>Chamber Size (w x h x l) inches/millimeters</b>	<b>26 x 36 x 39 660.4 x 914.4 x 990.6</b>	<b>26 x 36 x 48 660.4 x 914.4 x 1219.2</b>	<b>26 x 36 x 60 660.4 x 914.4 x 1524</b>	<b>32 x 36 x 48 812.8 x 914.4 x 1219.2</b>
<b>Chamber Capacity</b>	<b>21 ft<sup>3</sup> / .59 m<sup>3</sup></b>	<b>26 ft<sup>3</sup> / .74 m<sup>3</sup></b>	<b>33 ft<sup>3</sup> / .93 m<sup>3</sup></b>	<b>32 ft<sup>3</sup> / .91 m<sup>3</sup></b>
Overall Width <sup>3</sup>	41.00 / 1041.4	41.00 / 1041.4	41.00 / 1041.4	87.00 / 2209.8
Knockdown Width	37.75 / 958.9	37.75 / 958.9	37.75 / 958.9	43.75 / 1111.0
Overall Height <sup>1</sup>	81.00 / 2057.4	81.00 / 2057.4	81.00 / 2057.4	81.00 / 2057.4
Overall Length (SD) <sup>2</sup>	53.19 / 1351.02	62.19 / 1579.62	74.19 / 1884.4	60.5 / 1536.7
Wall Opening Width <sup>3</sup>	76.00 / 1930.4	76.00 / 1930.4	76.00 / 1930.4	88.00 / 2235.2
Wall Opening Height	80.00 / 2032.0	80.00 / 2032.0	80.00 / 2032.0	80.00 / 2032.2
Wall Opening Length <sup>4</sup>	51.50 / 1308.1	60.50 / 1536.7	72.50 / 1841.5	62.5 / 1587.5
Fascia Width	78.00 / 1981.2	78.00 / 1981.2	78.00 / 1981.2	90.00 / 2286.0
Fascia Height	81.00 / 2057.4	81.00 / 2057.4	81.00 / 2057.4	81.00 / 2057.4
Floor to Chamber	24.00 / 609.6	24.00 / 609.6	24.00 / 609.6	24.00 / 609.6

1. Fascia extends 1" beyond wall opening on each side overlapping the wall and sealing the opening.
2. Allow minimum 2" clearance at rear of recessed unit only. Cabinet side models have rear clearance built in.
3. Contact PRIMUS for alternative wall opening.
4. Standard left side service/equipment access shown. Optional right side access is available.



# PRIMUS Clinical - Medium Sterilizers

## DOUBLE DOOR



## VOLUME/DIMENSIONS CHART

\*Refer to General Arrangement (GA) drawings for final connection point to utility services.  
(S-Steam, W-Water, D-Drain, E-Electrical, A-Air)

MODEL	E	F	G	G1
<b>Chamber Size (w x h x l) inches/millimeters</b>	<b>26 x 36 x 39 660.4 x 914.4 x 990.6</b>	<b>26 x 36 x 48 660.4 x 914.4 x 1219.2</b>	<b>26 x 36 x 60 660.4 x 914.4 x 1524</b>	<b>32 x 36 x 48 812.8 x 914.4 x 1219.2</b>
<b>Chamber Capacity</b>	<b>21 ft<sup>3</sup> / .59 m<sup>3</sup></b>	<b>26 ft<sup>3</sup> / .74 m<sup>3</sup></b>	<b>33 ft<sup>3</sup> / .93 m<sup>3</sup></b>	<b>32 ft<sup>3</sup> / .91 m<sup>3</sup></b>
Overall Width <sup>2</sup>	41.00 / 1041.4	41.00 / 1041.4	41.00 / 1041.4	87.00 / 2209.8
Knockdown Width	37.75 / 958.9	37.75 / 958.9	37.75 / 958.9	43.75 / 1111.0
Overall Height <sup>1</sup>	81.00 / 2057.4	81.00 / 2057.4	81.00 / 2057.4	81.00 / 2057.4
Overall Length (DD)	58.50 / 1485.9	67.50 / 1714.5	79.50 / 2019.3	64.63 / 1641.6
Wall Opening Width <sup>2</sup>	76.00 / 1930.4	76.00 / 1930.4	76.00 / 1930.4	88.00 / 2235.2
Wall Opening Height	80.00 / 2032.0	80.00 / 2032.0	80.00 / 2032.0	80.00 / 2032.0
Wall Opening Length <sup>3</sup>	50.90 / 1292.86	59.90 / 1521.46	71.90 / 1826.26	62.00 / 1574.8
Fascia Width	78.00 / 1981.2	78.00 / 1981.2	78.00 / 1981.2	90.00 / 2286.0
Fascia Height	81.00 / 2057.4	81.00 / 2057.4	81.00 / 2057.4	81.00 / 2057.4
Floor to Chamber	24.00 / 609.6	24.00 / 609.6	24.00 / 609.6	24.00 / 609.6

1. Fascia extends 1" beyond wall opening on each side overlapping the wall and sealing the opening.
2. Contact PRIMUS for alternative wall opening.
3. Standard left side service/equipment access shown. Optional right side access is available.

## ARCHITECTURAL NOTES:

1. Allow sufficient space for traps, shut-off's, filters and other utility supply components.
2. Utility (service disconnects) shall be provided and installed "By Others".
3. Building or structure modifications to accommodate the sterilizer, as well as, sterilizer shoring, rigging, cribbing and/or crane requirements into the facility performed "By Others".
4. Provide maximum mechanical and service access space (refer to page 3 and 4), additional space required when boiler specified. See General Arrangement drawing, for placement of ancillary equipment and service access.
5. Some options affect utility services and overall dimensions.
6. Water Quality - refer to page 6
7. The Manufacturer's Equipment Warranty does not cover failure due to improper utility provisions.
8. Drawings not to scale.
9. Wall thickness must be provided on single and double door models recessed through 1 or 2 walls, with cabinet sides.

## UTILITY SERVICES

Stub-in utility services within 6'-0" of final connection to sterilizer. Optimum sterilizer performance requires the specified utilities.

	<b>Steam (S)</b> Building Steam Supply . <b>Pipe Size:</b> See below . <b>Quality:</b> Condensate free 97% to 100% saturated vapor (suitably trapped to ensure dry steam and filtered to remove particulates) . <b>Pressure:</b> 50-80 PSIG Dynamic		<b>WATER (W)</b> Cold Water Supply . <b>Pipe Size:</b> See Below . <b>Temperature:</b> < 70° F . <b>Pressure:</b> 50-70 PSIG Dynamic		<b>DRAIN (D)</b> Building Drain System Minimum 2" . <b>Location:</b> Locate floor sink directly under sterilizer  <b>Note:</b> 1.) Exhaust discharge is cooled to < 140°F 2.) 12" x 12" x 8" floor sink is recommended by PRIMUS		<b>Air (A)</b> Instrument Air . <b>Connection</b> See Below . <b>Quality:</b> Dry and oil free . <b>Pressure:</b> 60-80 PSI Dynamic		<b>ELECTRICAL (E)</b> Building Power Supply . <b>Volts:</b> 110 . <b>Phase:</b> Single . <b>Amps:</b> 10  <b>Note:</b> Additional circuits for ancillary and optional equipment i.e., vacuum pump, boost pump, boiler, etc.	
Model	NPT	LBS/HR (KG / HR)	NPT	GPM (Liter)	NPT (Discharge Pipe Size)	NPT				
<b>E</b>	3/4"	169.0 (76.66)	3/4"	14 (53)	1"	1/4"				
<b>F</b>	3/4"	200.0 (90.72)	3/4"	14 (53)	1"	1/4"				
<b>G</b>	1"	260.0 (117.94)	3/4"	14 (53)	1"	1/4"				
<b>G1</b>	1"	256.0 (116.21)	3/4"	14 (53)	1"	1/4"				

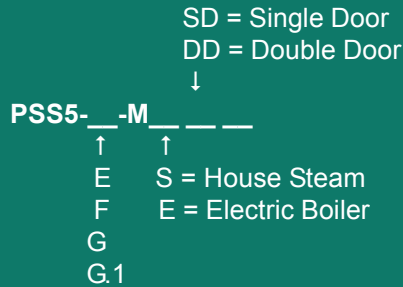
## HVAC DATA Heat loss, at ambient of 70° F.

	MODEL	KBTU'S/HR
<b>SINGLE DOOR:</b> Through one wall, at fascia	E	5
	F	5
	G	5
	G.1	5.2
<b>SINGLE DOOR:</b> Through one wall, service area	E	7.5
	F	9
	G	11.8
	G.1	12.2
<b>SINGLE DOOR:</b> Free standing, cabinet total	E	13.3
	F	14
	G	16
	G.1	16

	MODEL	KBTU'S/HR
<b>DOUBLE DOOR:</b> Through one wall, at fascia	E	5
	F	5
	G	5
	G.1	5.2
<b>DOUBLE DOOR:</b> Through one wall, service area	E	12.3
	F	13
	G	16
	G.1	13.8
<b>DOUBLE DOOR:</b> Through two walls, at each fascia	E	5
	F	5
	G	5
	G.1	5.2
<b>DOUBLE DOOR:</b> Through two walls service area	E	6.9
	F	8
	G	10
	G.1	9.2

Use the following pages to custom design your sterilizer by checking the boxes of the configuration and options required for your project. Transfer all items checked to the Technical Worksheet (Page 12) and fax to PRIMUS Sales Department or to your local Sales Representative for a quotation. If you do not find an option or size listed to meet your requirements, please contact our Project Manager for additional information and assistance.

## Model Number Notation



Three models/sizes are offered:

- E - 26" x 36" x 39"
- F - 26" x 36" x 48"
- G - 26" x 36" x 60"
- G.1 - 32" x 36" x 48"

A detailed formatted specification, suitable for inclusion in formal contract documents, is available on request.

**Note:** Use the above format to determine PRIMUS Model number and insert below and on Page 12, Technical Worksheet.

PRIMUS Clinical Steam Pressure Sterilizer, Model Number PSS5\_\_\_\_\_.

## SELECT CONFIGURATION

### Door

- DAR - Single Door (Right)
- DAL - Single Door (Left)
- DBR - Double Door (Right)
- DBL - Double Door (Left)

### Recessed

- CA - One Wall
- CB - Two Walls

### Steam Source

- House Supply
- Electric Boiler<sup>1,2,3,5</sup>
  - EB1 - 208/3 phase
  - EB2 - 240/3 phase
  - EB3 - 480/3 phase
  - Other \_\_\_\_\_
- EB0<sup>4</sup>- Auto. Blowdown

### Cabinet

- CD - Panels Both Sides
- CCL - Left Side Panel
- CCR - Right Side Panel

### Service and Equipment Access

- Left Side (Standard)
- Right Side

1. Electric Boilers are available in Carbon Steel or Stainless Steel.
2. Contact PRIMUS for overall dimensions and utility connections.
3. All models are stand alone.
4. Low Water Cutoff is standard and the "automatic reset" feature is disabled with this option. The boiler will need to be manually reset.
5. Water Quality - for best results, the feed water supply should be evaluated prior to initial start-up by a reputable water conditioning company. If the mineral content exceeds recommended limits, various external treatment processes (water softener, water conditioning, etc.) may be used to correct the problem. Contact PRIMUS for further recommendations.

## CLINICAL LABORATORY CONFIGURATIONS

### Low Temperature Flowing Steam P14

For media preparation, formula and similar uses. Pasteurization is accomplished with flowing steam. In addition to standard sterilizer temperature ranges, this option allows cycles to operate in the range of 168°F (76°C) to 220°F (104°C). Not intended for reprocessing reusable medical devices.

## CONTROLS AND RELATED OPTIONS

(Contact PRIMUS for details and performance specifications)

### PSS500 Control C6

PSS500 microcomputer with eight (8) separate factory preset cycles; seven (7) programmable and 1 Test cycle are standard. A vertical touchpad contains a Liquid Crystal Display (LCD) mounted on a side-mounted control panel with a thermal printer. Cycle progression is displayed by Light Emitting Diodes (LEDs) on the operator panel and printed, 32 characters per line printing. A second copy of the entire sterilization cycle printable at the end of the run.

FACTORY PRESET CYCLES				
Load Type	Cycle Number	Cycle Type	Sterilize Temp	Sterilize Time (min)
Double Wrapped Instruments 16lbs each tray	1*	Vacuum	270°F (132°C)	15
Unwrapped Nonporous Single Instrument	2	Vacuum	270°F (132°C)	4
Double Wrapped Instrument Trays 16lbs each tray	3	Vacuum	270°F (132°C)	4
Textile Packs 12 lbs	4	Vacuum	270°F (132°C)	4
Unwrapped Nonporous Single Instrument	5*	Gravity	270°F (132°C)	4
Fabric Packs maximum size: 12x12x20, 12 lbs	6	Gravity	250°F (121.1°C)	30
Vented Borosilicate glass containers, 500ml or smaller	7	Liquids	250°F (121.1°C)	30
Bowie-Dick Test	8	Test (VAC)	273°F (134°C)	3-1/2

\* Cycles not available on the PSS5-G.1 model.

- Gravity cycles must be loaded in a manner to ensure no air is entrapped in the load. E.g., invert pans, beakers and similar items.

### Thermal Printer R7

Thermal dot-matrix printer with take-up reel and 32 character per line printing is standard. Second sterilization cycle report available at the end of the run.

### Remote Mount Control Panel C10

Mount control panel in separate housing adjacent to or up to 35 feet away from the sterilizer.

### Serial Data Output C11

Supervisory use to capture electronic record of each sterilization cycle. Cycle hard copy and display data is transmitted via RS232 in real time to remote computer, up to 100 feet away, for display and recording. Hard copy records may be printed from the computer.

Contact PRIMUS for additional configuration options.



- Liquid Crystal Display (LCD)
- Light Emitting Diode (LED)
- Cycle Buttons
- Heart Buttons

## GENERAL OPTIONS

- Validation Port, 1.5" inch V4**  
Provides chamber penetration to accommodate various monitoring/control probes. Standard on all models.
  
- Seismic Restraints V8**  
Required in areas prone to seismic hazards. Secures sterilizer to building but allows for leveling. Designed to current California Code.

## UTILITY - RELATED OPTIONS

- Boost Pump for Low House Water Pressure P3**  
Delivers required dynamic water pressure for efficient operation. Requires specified GPM flow. *Contact PRIMUS for details and performance specifications.*
  
- Transformers E1**  
Reduces line voltage to required 110 VAC for operation of sterilizer controls.

	E1A	220 vac to 110 vac
	E1B	480 vac to 110 vac
	E1C	480/240 to 240/120, 1 phase, 0.5 KVA

- Uninterruptible Power Supply E2**  
In the event of electrical power loss and no emergency electrical power to sterilizer, this option provides electrical power to operate control system for up to 30 minutes, to complete the cycle. This option is a dedicated power source for the electronic controls only and will not support any power requirements for heavy power load components (boiler, pumps, compressors, etc.).

## LOADING EQUIPMENT

Standard chamber shelving includes a fixed, removable, wire mesh bottom shelf, see note below. As an option an extendable bottom shelf, is available. Optional additional chamber shelf(ves) may be specified.

Loading cart includes one bottom and one intermediate shelf with four adjustable levels. Additional shelves are available. Cart frames and shelves are 316L stainless steel welded, ground and polished. Shelf surfaces are stainless steel wire mesh. Transfer carriages include swivel casters with swivel locks and 5" wheels with wheel brakes.

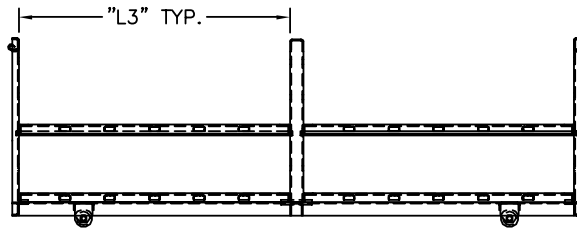
	L1	Removable Bottom Shelf
	L2	Extendable Bottom Shelf ( 26"x36"x39" Only)
	L3	Additional Chamber Shelf (26"x36"x39" Only)
	L4	Loading Cart
	L5	Additional Cart Shelf
	L6	Transfer Carriage

**NOTE:** Loading cart and transfer carriages are recommended for chamber lengths 48 inches or longer.

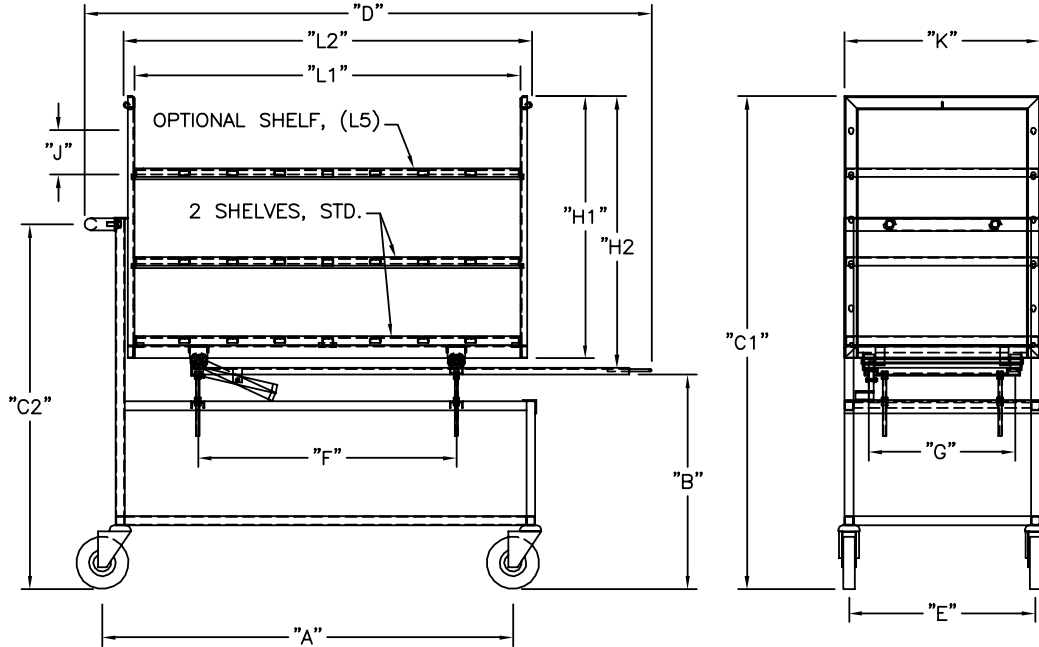
*Contact PRIMUS for special loading equipment requirements and/or for weight and load capacity.*



# PRIMUS Clinical - Medium Sterilizers



SIDE VIEW (60" CHAMBER OR LONGER)



SIDE VIEW

END VIEW

## Transfer Carriage and Loading Cart Dimensions

CHAMBER SIZE	CARRIAGE QTY	CART QTY	A	B	C1	C2	D	E	F
E - 26"x36"x39"	1-L6	1-L4	40.25"	24"	57.19"	41.06"	57.00"	21"	35.50"
F - 26"x36"x48"	1-L6	1-L4	48.25"	24"	55.44"	41.06"	63.88"	21"	29.06"
G - 26"x36"x60"	1-L6	1-L4	60.25"	24"	55.44"	41.06"	75.88"	21"	41.13"
G.1 - 32"x36"x48"	1-L6	1-L4	46.25"	24"	55.44"	41.06"	63.88"	27"	29.00"

## Transfer Carriage and Loading Cart Dimensions Cont'd

CHAMBER SIZE	CARRIAGE QTY	CART QTY	G	H1	H2	J	K	L1	L2	L3
E - 26"x36"x39"	1-L6	1-L4	16.50"	31"	32.38"	5"	24"	34"	37"	N/A
F - 26"x36"x48"	1-L6	1-L4	16.50"	29.50"	30.56"	5"	22"	43.50"	46"	N/A
G - 26"x36"x60"	1-L6	1-L4	16.50"	29.50"	30.56"	5"	22"	55.50"	58"	27"
G.1 - 32"x36"x48"	1-L6	1-L4	22.50"	29.50"	30.00"	5"	28"	43.50"	46"	N/A





