



## Sterilizing Units, Steam, Bulk

### Scope of this Product Comparison

This Product Comparison covers large steam sterilizers designed as freestanding units or supported by mobile stands. Tabletop steam sterilizing units are covered in a separate Product Comparison titled **STERILIZING UNITS, STEAM, TABLETOP**. For information on other types of sterilizing units, see the following Product Comparisons:

- Flexible Endoscope Reprocessors, Automatic
- Sterilizing Units, Ethylene Oxide
- Washer/Sterilizing Units

### UMDNS information

This Product Comparison covers the following device term and product code as listed in ECRI's Universal Medical Device Nomenclature System™ (UMDNS™):

- Sterilizing Units, Steam, Bulk [16-141]

in the chamber. The chamber is closed, and the appropriate time and temperature settings are selected for the material being sterilized. Some sterilizers allow these parameters to be preset so the push of a button will start sterilization. Personnel should refer to the manufacturer's instructions for settings appropriate for the devices being sterilized.

When steam enters the sterilizer chamber, it contacts the cool outer layer of the wrapped packs and condenses on it, leaving behind a small amount of water and transferring substantial heat to the fabric. The condensation of the steam also causes a 99% decrease

### Purpose

Steam sterilizers use pressurized steam to generate moist heat to eliminate viable microbes from non-heat-sensitive medical devices, including heat-tolerant products used for surgical and general patient care.

### Principles of operation

Items to be sterilized are cleaned to remove contaminants, such as feces, dried blood, and sputum, and rinsed with distilled or demineralized water to remove any detergent or tap-water residues. They are put into packs and loaded into baskets or carts that are placed



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in its volume and thus pulls in more steam to replace the steam that has changed to water. The steam does not continue to condense on the outer layer, which is now at the steam's temperature, but rather condenses on the next layer inward; the process continues until the steam has heated all items within the packs.

Once the steam has penetrated the packs and heated their contents to the selected sterilization temperature, the packs are held at that temperature for a preset length of time. The higher the temperature, the less time needed to achieve sterilization; the typical sterilization temperature range is 121° to 135°C (250° to 275°F). After the sterilization cycle is complete, the steam is exhausted with the aid of a partial vacuum, and the sterile items are dried using radiant heat from the chamber and the evaporative effect of the vacuum methods.

Large steam sterilizers are used for bulk sterilization processing and are typically found in the hospital's central supply department. Most operating suites and labor and delivery areas are equipped with smaller units for their own routine needs; however, those areas that perform a great deal of sterilization may require large sterilizers.

Air acts as a barrier against the penetration of steam into a pack and therefore must be removed from the sterilizer chamber by gravity, vacuum, steam flush-pressure pulse, or a combination of gravity and vacuum methods.

In a large gravity steam sterilizer, pressurized steam is introduced into the chamber from an external source — typically a dedicated steam line from a boiler in the physical plant. Steam rises above the cooler, denser air in the chamber and gradually forces that air out through a steam trap (a device that allows the exhausting of air but not steam) at the bottom of the chamber. However, a certain amount of air inevitably mixes with the steam, absorbing some of its heat, and therefore limits the maximum attainable chamber and load temperature at a given steam pressure. Gravity sterilizers typically operate at 121° to 123°C (250° to 254°F) but can operate at 132°C (270°F) to achieve flash sterilization, in which the items typically are not wrapped. Instruments may also be put into containers designed for use in flash sterilization.

Gravity sterilizers can process all types of items, including wrapped packs, instruments, and sterile fluids. However, a major disadvantage of gravity units is the long cycle time required for adequate steam penetration and effective air elimination from the chamber. In addition, the lower sterilization temperature requires a relatively long period of exposure



(approximately 30 minutes). Total cycle time for a gravity sterilizer can exceed one hour.

Vacuum sterilizers (also called prevacuum or high-vacuum sterilizers) provide quicker and more effective air elimination from the chamber than gravity units. At the beginning of the cycle, steam is injected at the same time that a partial vacuum is created (preconditioning), rapidly pulling the air out and the steam in and permitting the load to be heated very quickly to the selected temperature.

Because vacuum sterilizers provide effective air elimination, they can operate at higher temperatures, typically 132° to 135°C (270° to 275°F). Consequently, the load requires less exposure time (approximately three to five minutes) at the selected sterilization temperature and higher vacuum levels during the drying phase allow for shorter drying times. Overall cycle times for vacuum sterilizers are approximately 20 to 25 minutes.

Vacuum sterilization is not suitable for all applications, however. Some hospitals prepare their own sterile

fluids in reusable glass bottles with covers that allow the passage of air; at prevacuum sterilizing temperatures, the liquid can boil away, and rapid exhausting can pop the covers off the bottles. Most prevacuum sterilizers, therefore, can also use gravity to remove air when processing sterile fluids.

In the steam flush-pressure pulse method, the chamber is kept above atmospheric pressure, and air is removed by a sequence of steam flushes and pressure pulses. Steam flush-pressure pulse units perform at least as rapidly as vacuum sterilizers and at temperatures of 132° to 135°C (270° to 275°F). Because of the above-atmospheric pressure, leaks cannot interfere with the sterilization process, and Bowie-Dick monitoring may not be needed. Sterilizers can be reconfigured to perform this process if they are not equipped to do so already.

Flash sterilization is used to quickly sterilize instruments that have become contaminated during surgery and need to be reused. This rapid sterilization process does not use full cycles of exposure and drying times. Exposure cycles are shortened by eliminating wrapping material or using sterilization containers that ensure that all instruments are fully exposed to the steam. Recent criticism of the sterilizing efficacy of this method has caused the Association for the Advancement of Medical Instrumentation to issue the following recommendations for using flash sterilization:

- Use only when the sterilized items are urgently needed.
- Follow proper procedures before sterilization, such as cleaning, decontaminating, and inspecting instruments and properly arranging items in the container or tray.
- Position the sterilizer close to the point of instrument use.
- Develop procedures to ensure proper aseptic instrument handling and safety during the transfer of sterilized items.

Sterilization cycles and variables can be displayed graphically by a circle-chart recorder or alphanumerically by a microprocessor-controlled data reporter. Both provide the date and time and indicate if any problems have occurred that might adversely affect the sterilization cycle. The information can also be digitally displayed on the control panel. Many autoclaves have audible and/or visible alarms to indicate interference with the sterilization cycle; some have indicators that signal cycle completion.

The performance and effectiveness of a steam sterilizer should be tested using both biological and chemical

indicators. Biological indicators are heat-resistant bacterial spores that respond to sterilization much like the actual microorganisms that may be present in a load. Chemical indicators determine whether a pack or container was processed properly and can help detect sterilization failures resulting from improper packaging or loading or inaccurate steam temperatures.

### Reported problems

The steam sterilizer is an integral component in a complex system used to provide sterile products for patient care. This system includes collecting, cleaning, and laundering used instruments and linen; wrapping packs; loading the sterilizer; using biological and chemical indicators; monitoring steam pressure and quality; and storing the sterilized items. Therefore, it is often difficult to determine the cause of problems associated with steam sterilization processing.

The most notable problem is occasional false-positive biological indicators, which can occur even though the steam sterilizer is functioning properly. The biological indicators, or the way in which they are handled or incubated, may be at fault. Variabilities among biological indicators can also cause false-positive results.

A common problem with vacuum steam sterilizers is inadequate air removal from the sterilization chamber, which can usually be traced to a worn door gasket or to problems with the vacuum system. This is tested using a prevacuum test pack (commonly known as a Bowie Dick indicator). This problem does not affect steam flush-pressure pulse sterilizers because they operate above atmospheric pressure.

The mechanical safety of steam sterilizers is a concern because the sterilization chamber is under significant positive or negative pressure at different times during the cycle. All bulk steam sterilizer chambers manufactured in the United States must conform to the applicable requirements of the American Society of Mechanical Engineers Code for Boiler and Pressure Vessels (see *Standards and Guidelines* below). One sterilizer explosion resulted from improper maintenance of the electric steam generator beneath the sterilizer (a pressure-relief valve was erroneously replaced with a plug). Other reported problems involve worn parts affecting the mechanical integrity of the chamber door and defective circuit boards causing smoke and fires within affected units. It is important that hospitals have regular preventive maintenance and inspection of their steam sterilizers.

Wet steam can cause sterilization problems, including wet or damp packs, standing water on packs, stained

wrapper materials and pack contents, and deteriorated pack wrappers. Wet steam is commonly defined as steam with a water-vapor content  $\geq 3\%$  (i.e., a% dry steam) and is primarily caused by condensation in steam lines; other sources of wet steam include improper operation of steam traps or the hospital's boiler. As steam travels from the boiler to the sterilizers, condensation forms, causing an increase in the water-vapor content. Sterilizers supplied with their own electric steam generator usually have fewer wet-steam problems.

Marginal steam quality may not be discovered unless the hospital switches to barrier-type linens and pack wrappers, which are less penetrable by steam and water vapor. Muslin wrappers and linens are more penetrable during the sterilization and drying cycles and therefore are less affected by marginal steam quality.

The type of wrapper material, pack density, and chamber-loading technique can contribute to pack damage. Staining can result from rust contamination of the steam supply lines, chemicals used to treat the boiler feed water carrying over into the steam, and interaction of minerals and chemicals in the hospital's main water supply with boiler-treatment chemicals.

Much of the criticism of flash sterilization focuses on the short time the instrument load is exposed to the steam. However, contamination of treated instruments may actually result from presterilization and poststerilization handling and not by an ineffective rapid sterilization method — for instance, users might inadequately clean and decontaminate items before sterilizing them, or unwrapped items might be contaminated as they are being carried to the sterile field. Although this belief is gaining widespread acceptance among infection control experts, at least one state has passed laws limiting the use of flash sterilization to instances when there is an immediate need for sterilized items and no readily available alternative.

Manufacturers typically provide technical bulletins for each available size or model of sterilizer. These bulletins include detailed information on design and operating features, options, utilities requirements, and installation considerations. Potential buyers should obtain specific bulletins once they have defined their needs regarding sterilizer type (gravity, vacuum, or steam flush-pressure pulse), loading (transfer cart or wheeled floor cart), and chamber size.

### Purchase considerations

#### ECRI recommendations

Included in the accompanying comparison chart are ECRI's recommendations for minimum performance requirements for bulk steam sterilizers; recommended

specifications have been categorized into one group including all sterilizers with chamber sizes  $2 \text{ m}^3$ .

Temperature ranges for steam sterilization should be at least  $121^\circ\text{C}$  ( $250^\circ\text{F}$ ), which is the lowest commonly accepted temperature. Steam sterilizers should have microprocessor controllers because they allow for more precise control and monitoring of sterilization cycles. Also, to ensure that sterility is achieved, sterilizers should record time and temperature. All chambers must conform with the ASME (American Society of Mechanical Engineers) pressure vessel codes to ensure safety (see Standards and Guidelines).

#### Other considerations

The initial cost of a bulk steam sterilizer can vary from approximately \$20,000 for an  $18 \text{ ft}^3$  ( $0.5 \text{ m}^3$ ) transfer-cart-loading vacuum sterilizer to about \$600,000 for a large floor-loading vacuum unit that can accommodate two carts. Features that significantly contribute to price include the following:

- Method of air removal (i.e., gravity units typically cost less than other units)
- Chamber size
- Manual or power doors
- Controller options
- Auxiliary loading equipment
- Service contracts
- Trade-in equipment
- Delivery area
- Freight charges

Several of these features also affect the cost of autoclaves, including method of air removal, controller options, and service contracts.

#### Cost containment

Because bulk steam sterilizers entail ongoing maintenance and operational costs, the initial acquisition cost does not accurately reflect the total cost of ownership. Therefore, a purchase decision should be based on issues such as life-cycle cost (LCC), local service support, discount rates and non-price-related benefits offered by the supplier, and standardization with existing equipment in the department or hospital (i.e., purchasing all sterilizers from one supplier).

An LCC analysis can be used to compare high-cost alternatives and/or to determine the positive or negative economic value of a single alternative. For example, hospitals can use LCC analysis techniques to examine the cost-effectiveness of leasing or renting equipment versus purchasing the equipment outright.

Because it examines the cash-flow impact of initial acquisition costs and operating costs over a period of time, LCC analysis is most useful for comparing alternatives with different cash flows and for revealing the total costs of equipment ownership. One LCC technique — present value (PV) analysis — is especially useful because it accounts for inflation and for the time value of money (i.e., money received today is worth more than money received at a later date). Conducting a PV/LCC analysis often demonstrates that the cost of ownership includes more than just the initial acquisition cost and that a small increase in initial acquisition cost may produce significant savings in long-term operating costs. The PV is calculated using the annual cash outflow, the dollar discount factor (the cost of capital), and the lifetime of the equipment (in years) in a mathematical equation.

The following represents a sample 10-year PV/LCC analysis for a medium-sized (0.85 m<sup>3</sup>) bulk sterilizer.

**Present Value/Life-Cycle Cost Analysis**

*Assumptions*

- Operating costs are considered for years 1 through 10
- Dollar discount factor is 6%
- Inflation rate is 6% for operating costs
- Average of 8 loads/day for 1 sterilizer
- Cost per load includes labor, maintenance/service contracts, supplies (e.g., biological monitors, recording paper), steam, electricity, and water (O’Shaughnessy 1993)
- Costs of maintenance/service contracts in first year of operation is included in warranty

*Capital Costs*

- Sterilizer = \$80,000

Total Capital Costs = \$80,000

*Operating Costs*

- Annual load costs (year 1) at \$13/load, 8 loads/day = \$37,960
- Annual load costs (years 2 through 10) at \$16/load, 8 loads/day = \$46,720

Total Operating Costs = \$37,960 for year 1; \$46,720/year for years 2 through 10

**PV = (\$538,440)**

The following are costs not included in the above analysis that should be considered for budgetary planning:

- Costs associated with replacement trays, carts, shelves, etc.
- Installation costs, which may include removing units that are being replaced and/or fitting a dedicated steam pipe from the physical plant, as well as either connecting the sterilizer to the exhaust line of the hospital heating, ventilating, and air-conditioning system or installing a dedicated exhaust duct to the outside of the building.

As illustrated by the above sample PV/LCC analysis, the initial acquisition cost is only a fraction of the total cost of operation over 10 years. Therefore, rather than making a purchase decision based solely on the acquisition cost of a sterilizing unit, buyers should consider operating costs over the lifetime of the equipment.

For further information on PV/LCC analysis, customized analyses, and purchase decision support, readers should contact ECRI’s SELECT™ Group.

Energy consumption is the main factor contributing to a bulk sterilizer’s long-term operating costs. Electricity costs can vary greatly depending on the unit’s size, method of air removal (i.e., gravity units are less expensive to run than other sterilizers), and the controller electronics system.

Hospitals can purchase service contracts or service on a time-and-materials basis from the supplier. Service may also be available from a third-party organization. The decision to purchase a service contract should be carefully considered; it can be justified for several reasons. Purchasing a service contract ensures that preventive maintenance will be performed at regular intervals, thereby eliminating the possibility of unexpected maintenance costs. Also, many suppliers do not extend sterilizer performance guarantees beyond the length of the warranty unless the system is covered by a service contract.

ECRI recommends that, to maximize bargaining leverage, hospitals negotiate pricing for service contracts before the system is purchased. As a guideline, full-service contracts typically cost approximately 10% of the sterilizing unit’s purchase price. Additional service-contract discounts may be negotiable for multiple-year agreements or for service contracts that are bundled with contracts on other sterilizers in the department or hospital.

**Stage of development**

Steam sterilizers have been used in hospitals for more than a century. Other than the method of air removal and the addition of electronic controls and monitors, their basic theory of operation has changed

little in that time. Microprocessor controls have been incorporated to increase the sterilizer's reliability and ease of use. Newer models offer such features as built-in safety devices, the ability to be modified with additional safety components (e.g., door-interlock systems, audible alarms), and preprogrammed sterilization cycles. Future enhancements may include the use of microwave or ultraviolet radiation to sterilize heat- and steam-sensitive devices.

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### Standards and guidelines

**Note:** *Although every effort is made to ensure that the following list is comprehensive, please note that other applicable standards may exist.*

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## **Citations from other ECRI publications**

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Getinge steam and EtO sterilizers with powered horizontal doors [hazard report]. 1989 Mar-Apr;18(3-4): 135-7.

## **Supplier information**

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**Rodwell**

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**Sanyo**

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Sanyo Sales & Marketing Corp  
Medical Systems Div [399136]  
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E-mail: setb96133901@swan.sanyo.co.jp  
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Div Sanyo North America Corp [171737]  
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Phone: 44 (1256) 840400  
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### Sauter

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### Sterilizing Systems

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### STERIS

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**Zirbus Apparatebau**

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**About the chart specifications**

The following terms are used in the chart:

**Air removal:** Users can specify sterilizers with only gravity cycles or combination units that use vacuum air-removal cycles to process wrapped packs and instruments and a gravity cycle to process sterile fluids.

**Chamber sizes:** Chamber dimensions separated by commas indicate that all models in the series are available in all listed sizes.

A note on chamber sizes: All manufacturers make smaller sterilizers. However, those <18 ft<sup>3</sup> are typically too small for fast and economical processing of wrapped linen packs, instruments, and liquids in the sterile processing department. Some manufacturers can supply sterilizers larger than 85 ft<sup>3</sup>; however, these are typically designed for commercial processing rather than routine hospital use.

**Loading:** Transfer carts consist of a wheeled carriage that transports a loading car to and from the sterilizer. The loading car is disengaged from the carriage and slid into the sterilizer chamber. With floor carts, the entire cart is wheeled into the chamber.

**Recorder:** Most sterilizers have either a strip- or circle-chart recorder. The recorder can document the total cycle time, phases and elapsed time, all set points, the date, alarms, and a cycle summary.

**Installation:** Sterilizers can be pit or floor mounted. In pit-mounted models, the chamber floor is aligned with the building floor to allow direct loading and unloading of processing carts. In floor-mounted models, a hydraulic lift is provided at each door to raise and lower processing carts for loading and unloading. Push-button lift controls are included on the control panel.

**316L stainless steel:** Similar to type 316, except the carbon level (0.03) is labeled "maximum immune" to intergranular corrosion.

**Programmable:** Certain programs and program parameters can be determined by the user.

### Abbreviations:

**AISI** — American Iron and Steel Institute  
**ARO** — After receipt of order  
**ASME** — American Society of Mechanical Engineers  
**BS** — British Standard  
**CE** — Communauté Européenne  
**CE mark** — Conformance Européenne mark  
**CEN** — Comité Européen de Normalisation  
**CGMP** — Current Good Manufacturing Practices  
**CIF** — Common Intermediate Format  
**CLA** — City of Los Angeles  
**CRN** — Canadian Registration Number  
**CRT** — Cathode ray tube  
**CSA** — Canadian Standards Association  
**DIN** — Deutsches Institut fuer Normung  
**EC** — European Community  
**EEC** — European Economic Community  
**EMC** — Electromagnetic compatibility  
**EN** — European Norm  
**ETL** — ETL Testing Laboratories  
**FDA** — U.S. Food and Drug Administration  
**IEC** — International Electrotechnical Commission  
**ISO** — International Organization for Standardization  
**LCD** — Liquid crystal display

**MDD** — Medical Devices Directive  
**NFS** — Network File System  
**PC** — Personal computer  
**PIN** — Personal identification number  
**psig** — Pounds per square inch gauge  
**TUV** — Technischer Ueberwachungs Verein  
**UL** — Underwriters Laboratories  
**VDE** — Verband Deutscher Electrotechniker

**Note:** The data in the charts derive from suppliers' specifications and have not been verified through independent testing by ECRI or any other agency. Because test methods vary, different products' specifications are not always comparable. Moreover, products and specifications are subject to frequent changes. ECRI is not responsible for the quality or validity of the information presented or for any adverse consequences of acting on such information.

When reading the charts, keep in mind that, unless otherwise noted, the list price does not reflect supplier discounts. And although we try to indicate which features and characteristics are standard and which are not, some may be optional, at additional cost.

For those models whose prices were supplied to us in currencies other than U.S. dollars, we have also listed the conversion to U.S. dollars *to facilitate comparison among models*. However, keep in mind that exchange rates change often.

### Need to know more?

For further information about the contents of this Product Comparison, contact the *HPCS* Hotline at +1 (610) 825-6000, ext. 5265; +1 (610) 834-1275 (fax); or [hpcs@ecri.org](mailto:hpcs@ecri.org) (e-mail).

## Product Comparison Chart

MODEL	ECRI-RECOMMENDED SPECIFICATIONS *	ARS	ARS	BAUMER
	Bulk Steam Sterilizers	81000 : 85000	81000 : 85000 Floor Loading	Advance DL : Advance DL
WHERE MARKETED		Worldwide	Worldwide	Not specified
FDA CLEARANCE		Yes	Yes	Not specified
CE MARK (MDD)		Not specified	Not specified	Not specified
AIR REMOVAL		Gravity only or vacuum and gravity combination	Gravity only or vacuum and gravity combination	Vacuum
CHAMBER SIZES W x H x D, cm (in)		61 x 91.4 x 91.4 (24 x 36 x 36), 61 x 91.4 x 121.9 (24 x 36 x 48), 61 x 91.4 x 152.4 (24 x 36 x 60), custom to order	66 x 157.5 x 106.7 (26 x 62 x 42), 66 x 157.5 x 193 (26 x 62 x 76), custom to order	40 x 40 x 60 (15.7 x 15.7 x 23.6), 60 x 60 x 80 (23.6 x 23.6 x 31.5), 60 x 60 x 120 (23.6 x 23.6 x 47.2)
VOLUME, m <sup>3</sup> (ft <sup>3</sup> )	>2 (71)	0.51 (18), 0.68 (24), 0.85 (30)	1.1 (39), 2 (71)	0.096 (3.39), 0.288 (10.17), 0.432 (15.25)
CHAMBER MATERIAL		Nickel-clad steel or 316 stainless steel	Nickel-clad steel or 316 stainless steel	316L stainless steel
LOADING		Transfer cart/ carriage	Floor cart	Basket/transfer cart
TEMP RANGE, °C (F)				
Gravity cycle	≥121 (250)	100-135 (212-275)	100-135 (212-275)	NA
Vacuum cycle	≥121 (250)	110-135 (230-275)	110-135 (230-275)	121-134 (250-273)
Steam flush- pressure pulse	≥121 (250)	NA	NA	NA
CONTROLLER	Microprocessor controller	Automatic	Automatic	Automatic
RECORDER	Time, temperature	Circle chart or printer	Circle chart or printer	NA : Optional printer
DOORS Operation		Single or double Manual or power	Single or double Power	Single/double : Sngl Manual sliding door, opt auto slide door
INSTALLATION				
Cabinet enclosed		Yes	No	Yes
Recessed in wall		Yes	Yes	Yes
Pit mounted		No	Yes	Yes

Colons separate data on similar models of a device.

\* These recommendations are the opinions of ECRI's technology experts. ECRI assumes no liability for decisions made based on this data.

**This is the first of two pages covering the above model(s). These specifications continue onto the next page.**

Product Comparison Chart

MODEL	ECRI-RECOMMENDED SPECIFICATIONS *	ARS	ARS	BAUMER
	Bulk Steam Sterilizers	81000 : 85000	81000 : 85000 Floor Loading	Advance DL : Advance DL
<b>SUPPLY STEAM PRESS,</b> kg/cm <sup>2</sup> (psig)		3.5-5.6 (50-80)	3.5-5.6 (50-80)	Steam generator enclosed
<b>ELECTRICAL POWER</b> Gravity models, VAC		120, controls **	120, controls **	NA
Vacuum models, VAC		120, controls **	120, controls **	220/380
Steam flush-pressure pulse, VAC		NA	NA	NA
<b>PLANNING &amp; PURCHASE</b>				
List price, std configuration		\$22,000-120,000	\$100,000-200,000	Not specified
Warranty		2 years, parts and labor; 15 years, pressure vessel	2 years, parts and labor; 15 years, pressure vessel	1 year, parts; 5 years, chamber vessel
Delivery time, ARO Training		4-6 weeks 1-2 days on-site	4-6 weeks 1-2 days on-site	4-8 weeks Not specified
Year first sold Number installed USA/worldwide		1973 Not specified	1975 Not specified	1999 : 2000 Not specified
Fiscal year		November to October	November to October	Not specified
<b>OTHER SPECIFICATIONS</b>	Chamber must conform with ASME pressure vessel codes; vacuum relief line should be filtered with ≤0.3 µm pore size to allow sterile air into chamber.	Electromechanical or microprocessor controls; premium-grade, nonproprietary industrial components; optional water process recovery system. Meets requirements of ASME and CLA.	Side sliding or hinged wedge locking, heated doors; electro-mechanical or micro-processor controls; premium-grade, nonproprietary industrial components; optional water process recovery system. Meets requirements of ASME and CLA.	None specified.

Colons separate data on similar models of a device.

\* These recommendations are the opinions of ECRI's technology experts. ECRI assumes no liability for decisions made based on this data.

\*\* As specified for boilers or vacuum pumps.

## Product Comparison Chart

MODEL	BAUMER	BAUMER	BAUMER	BAUMER
	Advance NS	Hi-Vac Plus Sterilizers	Hi-Vac Steam Sterilizers	Nurse-Lab Steam Sterilizer
<b>WHERE MARKETED</b>	Not specified	Worldwide	Worldwide	Worldwide
<b>FDA CLEARANCE</b>	Not specified	Not specified	Not specified	Not specified
<b>CE MARK (MDD)</b>	Not specified	Not specified	Not specified	Not specified
<b>AIR REMOVAL</b>	Gravity	Vacuum	Vacuum	Gravity
<b>CHAMBER SIZES</b> W x H x D, cm (in)	40 x 40 x 60 (15.7 x 15.7 x 23.6)	40 x 46 x 60 (15.7 x 18.1 x 24), 46 x 46 x 120 (18.1 x 18.1 x 47.2), 46 x 66 x 120 (18.1 x 26 x 47.2), 66 x 66 x 160 (26 x 26 x 63), 66 x 66 x 200 (26 x 26 x 78.7)	46 x 46 x 60 (18.1 x 18.1 x 24), 46 x 46 x 120 (18.1 x 18.1 x 47.2), 46 x 66 x 120 (18.1 x 26 x 47.2), 66 x 66 x 160 (26 x 26 x 63), 66 x 66 x 200 (26 x 26 x 78.7)	40 (dia) x 60 (15.7 x 23.6), 40 x 40 x 60 (15.7 x 15.7 x 23.6), 40 x 40 x 120 (15.7 x 15.7 x 47.2)
<b>VOLUME,</b> m <sup>3</sup> (ft <sup>3</sup> )	0.096 (3.39)	0.14 (4.9), 0.25 (9), 0.36 (12.9), 0.52 (18.5), 0.69 (24.6), 0.87 (30.7)	0.14 (4.9), 0.25 (9), 0.36 (12.9), 0.52 (18.5), 0.69 (24.6), 0.87 (30.7)	0.096 (3.39), 0.19 (6.71)
<b>CHAMBER MATERIAL</b>	316L stainless steel	316L stainless steel	316L stainless steel	316L stainless steel
<b>LOADING</b>	Basket	Transfer cart	Transfer cart	Basket
<b>TEMP RANGE, °C (F)</b>				
Gravity cycle	121-134 (250-273)	NA	NA	105-121 (221-250)
Vacuum cycle	NA	121-134 (250-273)	121 or 134 (250 or 273)	NA
Steam flush-pressure pulse	NA	NA	NA	NA
<b>CONTROLLER</b>	Automatic	Automatic	Automatic	Automatic
<b>RECORDER</b>	NA	Printer	Optional	NA
<b>DOORS</b> Operation	Single Manual sliding door	Single or double Automatic sliding door	Single or double Manual sliding door	Single or double Manual, central locker
<b>INSTALLATION</b>				
Cabinet enclosed	Yes	Yes	Yes	Yes
Recessed in wall	Yes	Yes	Yes	Yes
Pit mounted	Yes	Yes	Yes	Yes

Colons separate data on similar models of a device.

**This is the first of two pages covering the above model(s). These specifications continue onto the next page.**

**Product Comparison Chart**

<b>MODEL</b>	<b>BAUMER</b>	<b>BAUMER</b>	<b>BAUMER</b>	<b>BAUMER</b>
	Advance NS	Hi-Vac Plus Sterilizers	Hi-Vac Steam Sterilizers	Nurse-Lab Steam Sterilizer
<b>SUPPLY STEAM PRESS, kg/cm<sup>2</sup> (psig)</b>	Steam generator enclosed	2.5 (37)	2.5 (37)	Steam generator enclosed
<b>ELECTRICAL POWER Gravity models, VAC</b>	220/380	NA	NA	220/380
<b>Vacuum models, VAC</b>	NA	220/380	220/380	NA
<b>Steam flush-pressure pulse, VAC</b>	NA	NA	NA	NA
<b>PLANNING &amp; PURCHASE</b>				
<b>List price, std configuration</b>	Not specified	Not specified	Not specified	Not specified
<b>Warranty</b>	1 year, parts; 5 years, chamber vessel	1 year, parts; 5 years, chamber vessel	1 year, parts; 5 years, chamber vessel	1 year, parts; 5 years, chamber vessel
<b>Delivery time, ARO Training</b>	4-8 weeks Not specified	4-8 weeks Not specified	4-8 weeks Not specified	4-8 weeks Not specified
<b>Year first sold</b>	1999	1952	1952	1952
<b>Number installed USA/worldwide</b>	Not specified	Not specified	Not specified	Not specified
<b>Fiscal year</b>	Not specified	Not specified	Not specified	Not specified
<b>OTHER SPECIFICATIONS</b>	None specified.	None specified.	None specified.	None specified.

Colons separate data on similar models of a device.



## Product Comparison Chart

MODEL	BAUMER Nurse Steam Sterilizer	BAUMER Plus Pharma Sterilizer	BELIMED INFECTION CONTROL GR HS1 : GR HS2	BELIMED INFECTION CONTROL HS1 : HS2
WHERE MARKETED	Worldwide	Worldwide	Worldwide	Worldwide
FDA CLEARANCE	Not specified	Not specified	Yes	Yes
CE MARK (MDD)	Not specified	Not specified	Yes	Yes
AIR REMOVAL	Gravity	Vacuum	Vacuum or gravity	Vacuum or gravity
<b>CHAMBER SIZES</b> W x H x D, cm (in)	40 (dia) x 60 (15.7 x 23.6), 40 x 40 x 60 (15.7 x 15.7 x 23.6), 40 x 40 x 120 (15.7 x 15.7 x 47.2)	40 x 46 x 60 (15.7 x 18.1 x 23.6), 46 x 46 x 120 (18.1 x 18.1 x 47.2), 46 x 66 x 120 (18.1 x 26 x 47.2), 66 x 66 x 160 (26 x 26 x 63), 66 x 66 x 200 (26 x 26 x 78.7)	66 x 123 x 104 (26 x 48.4 x 40.9), 66 x 123 x 140 (26 x 48.4 x 55.1), 66 x 123 x 170 (26 x 48.4 x 66.9), 66 x 123 x 200 (26 x 48.4 x 78.7)	66 x 108 x 104 (26 x 42.5 x 40.9), 66 x 108 x 140 (26 x 42.5 x 55.1), 66 x 108 x 170 (26 x 42.5 x 66.9), 66 x 108 x 200 (26 x 42.5 x 78.7)
<b>VOLUME,</b> m <sup>3</sup> (ft <sup>3</sup> )	0.096 (3.39), 0.19 (6.71)	0.14 (4.9), 0.25 (9), 0.36 (12.9), 0.52 (18.5), 0.69 (24.6), 0.87 (30.7)	0.84 (30), 1.13 (40), 1.38 (48), 1.62 (57)	0.74 (26), 1 (35), 1.21 (42), 1.42 (50)
CHAMBER MATERIAL	316L stainless steel	316L stainless steel	Stainless steel	Stainless steel
LOADING	Basket	Transfer cart	Loading cart/ automated conveyors	Cart/carriage/auto- mated conveyors
<b>TEMP RANGE, °C (F)</b>				
Gravity cycle	121 or 134 (250 or 273)	121-134 (250-273)	100-135 (212-275)	100-135 (212-275)
Vacuum cycle	NA	NA	100-135 (212-275)	100-135 (212-275)
Steam flush- pressure pulse	NA	NA	NA	NA
CONTROLLER	Automatic	Automatic	Microprocessor	Microprocessor
RECORDER	NA	Printer	Printer and/or store to remote computer	Printer and/or store to remote computer
<b>DOORS</b> Operation	Single or double Manual, central locker	Single or double Automatic sliding door	Single or double Power horizontal sliding door	Single or double Power horizontal sliding door
<b>INSTALLATION</b>				
Cabinet enclosed	Yes	Yes	Yes	Yes
Recessed in wall Pit mounted	Yes Yes	Yes Yes	Yes Yes	Yes No

Colons separate data on similar models of a device.

This is the first of  
two pages covering  
the above model(s).  
These specifications  
continue onto the  
next page.

Product Comparison Chart

MODEL	BAUMER Nurse Steam Sterilizer	BAUMER Plus Pharma Sterilizer	BELIMED INFECTION CONTROL GR HS1 : GR HS2	BELIMED INFECTION CONTROL HS1 : HS2
<b>SUPPLY STEAM PRESS, kg/cm<sup>2</sup> (psig)</b>	Steam generator enclosed	2.5 (37)	2.5-4.5 (35-65), optional integrated steam generator	2.5-4.5 (35-65), optional integrated steam generator
<b>ELECTRICAL POWER Gravity models, VAC</b>	220/380	NA	208 VAC, 3-phase	208 VAC, 3-phase
<b>Vacuum models, VAC</b>	NA	220/380	208 VAC, 3-phase	208 VAC, 3-phase
<b>Steam flush- pressure pulse, VAC</b>	NA	NA	NA	NA
<b>PLANNING &amp; PURCHASE List price, std configuration</b>	Not specified	Not specified	\$140,000-165,000	\$110,000-147,000
<b>Warranty</b>	1 year, parts; 5 years, chamber vessel	1 year, parts; 5 years, chamber vessel	1 year, parts and labor including PMs	1 year, parts and labor including PMs
<b>Delivery time, ARO Training</b>	4-8 weeks Not specified	4-8 weeks Not specified	4-5 months 1-2 days on-site, optional at factory 2002	4-5 months 1-2 days on-site optional at factory 2002
<b>Year first sold Number installed USA/worldwide</b>	1952 Not specified	1952 Not specified	Not specified	Not specified
<b>Fiscal year</b>	Not specified	Not specified	January to December	January to December
<b>OTHER SPECIFICATIONS</b>	None specified.	None specified.	Microprocessor controls; non- proprietary industrial components; all stainless components for pure-steam operation; water- saving option, <1 gallon/cycle; data-management capabilities.	Microprocessor controls; non- proprietary industrial components; all stainless components for pure-steam operation; water- saving option, <1 gallon/cycle; data-management capabilities.

Colons separate data on similar models of a device.

## Product Comparison Chart

MODEL	BELIMED INFECTION CONTROL VS1 : VS2	BUXTON 9300 : 9400 : 9500	CISA Series 420	CISA Series 640
WHERE MARKETED	Worldwide	Worldwide	Worldwide	Worldwide
FDA CLEARANCE	Yes	Yes	Yes	Yes
CE MARK (MDD)	Yes	No	Yes	Yes
AIR REMOVAL	Vacuum or gravity	Gravity or high vacuum	Vacuum	Vacuum
CHAMBER SIZES W x H x D, cm (in)	66 x 66 x 70 (26 x 26 x 27.6), 66 x 66 x 100 (26 x 26 x 39.4), 66 x 66 x 130 (26 x 26 x 51.2)	61 x 91.4 x 91.4 (24 x 36 x 36) : 61 x 91.4 x 121.9 (24 x 36 x 48) : 61 x 91.4 x 152.4 (24 x 36 x 60)	45 x 45 x [70, 100, 125] (17.7 x 17.7 x [27.6, 39.4, 49.2])	66 x 66 x [70, 100, 125, 160, 190] (26 x 26 x [27.6, 39.4, 49.2, 63, 74.8])
VOLUME, m <sup>3</sup> (ft <sup>3</sup> )	0.30 (11), 0.44 (15), 0.57 (20)	0.42 (15)	0.14 (4.9) : 0.20 (7.1) : 0.25 (8.8)	0.35 (12.4) : 0.43 (15.2) : 0.59 (20.8) : 0.69 (24.4) : 0.82 (29)
CHAMBER MATERIAL	Stainless steel	Nickel-clad or stainless steel	AISI 316Ti	AISI 316Ti
LOADING	Loading cart/rack, draw-out shelves	Transfer cart	Manual or transfer cart	Transfer cart
TEMP RANGE, °C (F)				
Gravity cycle	100-135 (212-275)	121-135 (250-275)	121-135 (250-275)	121-135 (250-275)
Vacuum cycle	100-135 (212-275)	121-135 (250-275)	121-135 (250-275)	121-135 (250-275)
Steam flush- pressure pulse	Not specified	Not specified	Not specified	Not specified
CONTROLLER	Microprocessor	Automatic	Programmable logic systems	Programmable logic systems
RECORDER	Printer and/or store to remote computer	Recorder/chamber	Printer	Printer
DOORS Operation	Single or double Power vertical sliding door	Single or double Manual	Single or double Pneumatic sliding, vertical/horizontal	Single or double Pneumatic sliding, vertical/horizontal
INSTALLATION				
Cabinet enclosed	Yes	Yes	Yes	Yes
Recessed in wall	Yes	Yes	Yes	Yes
Pit mounted	No	Yes	No	No

Colons separate data on similar models of a device.

This is the first of two pages covering the above model(s). These specifications continue onto the next page.

Product Comparison Chart

MODEL	BELIMED INFECTION CONTROL VS1 : VS2	BUXTON 9300 : 9400 : 9500	CISA Series 420	CISA Series 640
<b>SUPPLY STEAM PRESS, kg/cm<sup>2</sup> (psig)</b>	2.5-4.5 (35-65), optional integrated steam generator	3.5-5.6 (50-80)	3-4	3-4
<b>ELECTRICAL POWER Gravity models, VAC</b>	208 VAC, 3-phase	120 : 208 : 208	Not specified	Not specified
<b>Vacuum models, VAC</b>	208 VAC, 3-phase	As required	240-400, 24 kW	240/400, 31 kW/49 kW
<b>Steam flush- pressure pulse, VAC</b>	NA	Not specified	Not specified	Not specified
<b>PLANNING &amp; PURCHASE List price, std configuration</b>	\$67,000-80,000	\$43,000-60,000	Not specified	Not specified
<b>Warranty</b>	1 year, parts and labor including PMs	1 year, parts; 90 days, laser; 15 years, vessel	15 months	15 months
<b>Delivery time, ARO Training</b>	4-5 months 1-2 days on-site, optional at factory 2002	90-120 days As required	30 days On-site/in factory	30 days On-site/in factory
<b>Year first sold Number installed USA/worldwide</b>	Not specified	1980	1948	Not specified
<b>Fiscal year</b>	January to December	October to September	January to December	January to December
<b>OTHER SPECIFICATIONS</b>	Microprocessor controls; non- proprietary industrial components; all stainless components for pure-steam operation; water- saving option, <1 gallon/cycle; data-management capabilities.	All brass pipes. Meets requirements of CSA and UL.	Optional supervision management system, sterilization management system. Meets requirements of CE 93/42, DIN, EN, ISO, TUV.	Optional supervision management system, sterilization management system. Meets requirements of CE 93/42, DIN, EN, ISO, TUV.

Colons separate data on similar models of a device.

## Product Comparison Chart

MODEL	CONSOLIDATED STILLS	CONSOLIDATED STILLS	CONSOLIDATED STILLS	CONSOLIDATED STILLS
	Cylindrical/Double-Wall Sterilizers	Cylindrical/Single-Wall Sterilizers	Rectangular Sterilizers SR Series	Rectangular Sterilizers SSR Series
<b>WHERE MARKETED</b>	Worldwide	Worldwide	Worldwide	Worldwide
<b>FDA CLEARANCE</b>	Yes	Yes	Yes	Yes
<b>CE MARK (MDD)</b>	Not specified	Not specified	Not specified	Not specified
<b>AIR REMOVAL</b>	Gravity only or vacuum and gravity combination	Gravity only or vacuum and gravity combination	Gravity only or vacuum and gravity combination	Gravity only or vacuum and gravity combination
<b>CHAMBER SIZES</b> W x H x D, cm (in)	40.6 (dia) x 61 (16 x 24) : 40.6 (dia) x 91.4 (16 x 36) : 50.8 (dia) x 91.4 (20 x 36) : 50.8 (dia) x 121.9 (20 x 48) : 61 (dia) x 90.4 (24 x 35.6)	40.6 (dia) x 61 (16 x 24) : 50.8 (dia) x 91.4 (20 x 36)	61 x 61 x 91.4 (24 x 24 x 36) : 61 x 61 x 121.9 (24 x 24 x 48) : 61 x 91.4 x 91.4 (24 x 36 x 36) : 61 x 91.4 x 121.9 (24 x 36 x 48) : 61 x 91.4 x 152.4 (24 x 36 x 60)	40.6 x 40.6 x 66 (16 x 16 x 26), 50.8 x 50.8 x 96.5 (20 x 20 x 38)
<b>VOLUME,</b> m <sup>3</sup> (ft <sup>3</sup> )	0.08 (2.8) : 0.13 (4.2) : 0.19 (6.3) : 0.26 (8.7) : 0.27 (8.9)	0.08 (2.8) : 0.19 (6.3)	0.35 (12) : 0.47 (16) : 0.52 (18) : 0.70 (24) : 0.87 (30)	0.12 (3.9), 0.26 (8.7)
<b>CHAMBER MATERIAL</b>	Stainless steel (optional Monel)	Stainless steel (optional Monel)	Nickel-clad steel (optional stainless steel)	Nickel-clad steel (optional stainless steel)
<b>LOADING</b>	Shelves (optional cart, carriage)	Shelves (optional cart, carriage)	Shelves (optional cart, carriage)	Shelves (optional cart, carriage)
<b>TEMP RANGE, °C (F)</b>				
Gravity cycle	121-135 (250-275) *	121-135 (250-275)	121-135 (250-275) *	121-135 (250-275) *
Vacuum cycle	121-135 (250-275) *	121-135 (250-275)	121-135 (250-275) *	121-135 (250-275) *
Steam flush-pressure pulse	NA	NA	NA	NA
<b>CONTROLLER</b>	Manual (optional automatic)	Manual (optional automatic)	Manual (optional automatic)	Manual (optional automatic)
<b>RECORDER</b>	Strip or circle chart (controller dependent)	Strip or circle chart (controller dependent)	Strip or circle chart (controller dependent)	Strip or circle chart (controller dependent)
<b>DOORS</b> Operation	Single or double Manual	Single or double Manual	Single or double Manual	Single or double Manual
<b>INSTALLATION</b>				
Cabinet enclosed	Yes	Yes	Yes	Yes
Recessed in wall Pit mounted	Yes No	Yes No	Yes No	Yes No

Colons separate data on similar models of a device.  
\* Low-temperature option available.

**This is the first of two pages covering the above model(s). These specifications continue onto the next page.**

Product Comparison Chart

MODEL	CONSOLIDATED STILLS	CONSOLIDATED STILLS	CONSOLIDATED STILLS	CONSOLIDATED STILLS
	Cylindrical/Double-Wall Sterilizers	Cylindrical/Single-Wall Sterilizers	Rectangular Sterilizers SR Series	Rectangular Sterilizers SSR Series
<b>SUPPLY STEAM PRESS, kg/cm<sup>2</sup> (psig)</b>	3.5-5.6 (50-80) vacuum, 2.8-4.2 (40-60) gravity	3.5-5.6 (50-80) vacuum, 2.8-4.2 (40-60) gravity	3.5-5.6 (50-80) vacuum, 2.8-4.2 (40-60) gravity	3.5-5.6 (50-80) vacuum, 2.8-4.2 (40-60) gravity
<b>ELECTRICAL POWER Gravity models, VAC</b>	120/220	120/220	120/220	120/220
<b>Vacuum models, VAC</b>	120/220	120/220	120/220	120/220
<b>Steam flush-pressure pulse, VAC</b>	NA	NA	NA	NA
<b>PLANNING &amp; PURCHASE</b>				
<b>List price, std configuration</b>	\$7,565-14,485	\$6,945-10,695	\$21,690-33,755	\$15,975-30,305
<b>Warranty</b>	1 year, parts and labor	1 year, parts and labor	1 year, parts and labor; 15 years, nickel-clad steel chambers	1 year, parts and labor; 15 years, nickel-clad steel chambers
<b>Delivery time, ARO Training</b>	90-120 days Maintenance/operating manual, on-site 1948	90-120 days Maintenance/operating manual, on-site 1948	90-120 days Maintenance/operating manual, on-site 1948	90-120 days Maintenance/operating manual, on-site 1948
<b>Year first sold Number installed USA/worldwide</b>	~7,500 world-wide January to December	~7,500 world-wide January to December	~7,500 world-wide January to December	~7,500 world-wide January to December
<b>Fiscal year</b>	January to December	January to December	January to December	January to December
<b>OTHER SPECIFICATIONS</b>	Double-wall stainless steel chamber; solid-state digital automatic controls or microprocessor controls with CRT display; strip- or circle-chart recorder; cycle lockout; automatic utility shutdown available; most units can be fitted with an integral electrically heated steam generator; all orders custom made. Meets requirements of ASME and CSA.	Single-wall stainless steel chamber; solid-state digital automatic controls or microprocessor controls with CRT display; strip- or circle-chart recorder; cycle lockout; automatic utility shutdown available; most units can be fitted with an integral electrically heated steam generator; all orders custom made. Meets requirements of ASME and CSA.	Solid-state digital automatic controls or microprocessor controls with CRT display; available with strip- or circle-chart recorder; cycle lockout against unauthorized use; automatic utility shutdown available; most units can be fitted with an integral electrically heated steam generator; all orders custom made. Meets requirements of ASME and CSA.	Solid-state digital automatic controls or microprocessor controls with CRT display; available with strip- or circle-chart recorder; cycle lockout against unauthorized use; automatic utility shutdown available; most units can be fitted with an integral electrically heated steam generator; all orders custom made. Meets requirements of ASME and CSA.

Colons separate data on similar models of a device.

## Product Comparison Chart

MODEL	ETC	ETC	GETINGE	GETINGE
	Industrial & Pharmaceutical	Medium Rectangular	733HC : 733LS	833HC : 833LS
<b>WHERE MARKETED</b>	Worldwide	Worldwide	Worldwide	Worldwide
<b>FDA CLEARANCE</b>	Yes	Yes	Yes	Yes
<b>CE MARK (MDD)</b>	No	No	No	No
<b>AIR REMOVAL</b>	Vacuum or gravity	Vacuum or gravity	Vacuum and gravity combination	Vacuum and gravity combination
<b>CHAMBER SIZES</b> W x H x D, cm (in)	66 x 157 x 193 (26 x 62 x 76) up to 389 x 213 x 1,082 (153 x 84 x 426), 80 sizes	61 x 91.4 x 91.4 (24 x 36 x 36) : 61 x 91.4 x 121.9 (24 x 36 x 48) : 61 x 91.4 x 152.4 (24 x 36 x 60)	66 x 91.4 x 100 (26 x 36 x 39.4), 66 x 91.4 x 135 (26 x 36 x 53.1), 66 x 91.4 x 155 (26 x 36 x 61)	67.2 x 157.5 x 106.7 (26.5 x 62 x 42) for 42" chamber; 67.2 x 157.5 x 193 (26.5 x 62 x 76) for 72" chamber
<b>VOLUME,</b> m <sup>3</sup> (ft <sup>3</sup> )	2-91 (70-3, 168), 80 sizes	0.52 (18) : 0.70 (24) : 0.87 (30)	0.61 (21.5), 0.83 (29.3), 0.96 (33.7)	1.1 (40), 2 (71)
<b>CHAMBER MATERIAL</b>	316L stainless steel	316L stainless steel	316Ti	316Ti
<b>LOADING</b>	Cart (pit mount) *	See footnote **	Transfer cart	Loading cart
<b>TEMP RANGE, °C (F)</b>				
Gravity cycle	105-138 (221-280.4)	105-138 (221-280)	110-135 (230-275)	121-135 (250-275)
Vacuum cycle	105-138 (221-280.4)	105-138 (221-280)	110-135 (230-275)	121-135 (250-275)
Steam flush- pressure pulse	Select up to 10 psig	Select up to 10 psig	NA	NA
<b>CONTROLLER</b>	Nonproprietary open platform PLC; modem	Nonproprietary open platform PLC; modem	Automatic	Automatic
<b>RECORDER</b>	20-column thermal printer; optional chart recorder	20-column thermal printer; optional chart recorder	Strip	Strip
<b>DOORS</b> Operation	Single or double *** Manual or power	Single or double † Manual or power	Single or double Power	Single or double Power
<b>INSTALLATION</b>				
Cabinet enclosed	Available	Yes	Yes	No
Recessed in wall Pit mounted	1 or 2 walls Yes (also floor mounted)	Yes No	Yes No	Yes Yes (also floor mounted)

Colons separate data on similar models of a device.

\* Cart and transfer carriages (floor mounting).

\*\* Loading carts, transfer carriages, shelves, and rack.

\*\*\* Hinged, horizontal sliding, or vertical sliding.

† Hinged radial arm or horizontal sliding.

**This is the first of two pages covering the above model(s). These specifications continue onto the next page.**

Product Comparison Chart

MODEL	ETC	ETC	GETINGE	GETINGE
	Industrial & Pharmaceutical	Medium Rectangular	733HC : 733LS	833HC : 833LS
<b>SUPPLY STEAM PRESS, kg/cm<sup>2</sup> (psig)</b>	3.5-5.6 (50-80)	3.5-5.6 (50-80)	3.5-4.9 (50-70)	3.5-4.9 (50-70)
<b>ELECTRICAL POWER</b>				
Gravity models, VAC	110-120, 1-phase, 50/60 Hz, 15 A	110-120, 1-phase, 50/60 Hz, 15 A	120	120
Vacuum models, VAC	208/230/380/460, 3-phase, 50/60 Hz	208/230/380/460, 3-phase, 50/60 Hz	120	120
Steam flush-pressure pulse, VAC	Selectable 0-10 psig and 0-27 Hg	Selectable 0-10 psig and 0-27 Hg	NA	NA
<b>PLANNING &amp; PURCHASE</b>				
List price, std configuration	\$120,000-600,000+	\$60,000-180,000	Not specified	Not specified
Warranty	1 year, parts and labor; 15 years, pressure vessel	1 year, parts and labor; 15 years, pressure vessel	1 year, parts and labor; 15 years, pressure vessel	1 year, parts and labor; 15 years, pressure vessel
Delivery time, ARO Training	6 months Available, custom	6 months Available, custom	30-60 days On-site	30-60 days On-site
Year first sold	1969	1969	2003	2003
Number installed USA/worldwide	100+/500+	100+/500+	Not specified	Not specified
Fiscal year	March to February	March to February	January to December	January to December
<b>OTHER SPECIFICATIONS</b>	Nonproprietary and commercially available piping components and PLC-based control systems; cGMP features and sanitary 3A construction available; effluent decontamination features cycle; vacuum leak-test cycle; filter sterilization in place cycle; special One-Step stopper sterilization and drying cycle; air over pressure or rapid cooling water cascade cycles; water-conserving closed-loop vacuum.	Nonproprietary and commercially available piping components and PLC-based control systems; cGMP features and sanitary 3A construction available; effluent decontamination features cycle; vacuum leak-test cycle; filter sterilization in place cycle; special One-Step stopper sterilization and drying cycle; air over pressure or rapid cooling water cascade cycles; water-conserving closed-loop vacuum.	Automatic controller available with strip recorder; computer-controlled liquid exhaust; supervisor control for cycle lockout; RS232 serial port for data logger. Meets requirements of ASME, CSA, and UL 544.	Automatic controller available with strip recorder; computer-controlled liquid exhaust; supervisor control for cycle lockout; RS232 serial port for data logger. Meets requirements of ASME, CSA, and UL 544.

Colons separate data on similar models of a device.



## Product Comparison Chart

MODEL	H&P LABORTECHNIK	H&P LABORTECHNIK	INTERNATIONAL PBI	INTERNATIONAL PBI
	Varioklav 75S : 135S	Varioklav 300E : 400E : 500E	ALFA : Ibromatic/Standard	FIFTY
WHERE MARKETED	Africa, Asia, Europe, South America	Africa, Asia, Europe, South America	Worldwide	Worldwide
FDA CLEARANCE	Not specified	Not specified	Not specified	Not specified
CE MARK (MDD)	Not specified	Not specified	Yes	Yes
AIR REMOVAL	Gravity or vacuum	Gravity or vacuum	Gravity	Gravity
<b>CHAMBER SIZES</b> W x H x D, cm (in)	40 (dia) x 60 (15.7 x 23.6) : 50 (dia) x 70 (19.7 x 27.6)	30 (dia) x 50 (11.8 x 19.7) : 40 (dia) x 60 (15.7 x 23.6) : 50 (dia) x 70 (19.7 x 27.6)	25 x 45 (9.9 x 17.7)	35 x 52 (13.8 x 20.5)
<b>VOLUME,</b> m <sup>3</sup> (ft <sup>3</sup> )	0.075 (2.6) : 0.135 (4.8)	0.035 (1.2) : 0.075 (2.6) : 0.135 (4.8)	0.023 (0.81)	0.05 (1.8)
CHAMBER MATERIAL	Stainless steel	Stainless steel	AISI 304 stainless steel	AISI 304 stainless steel
LOADING	Manual	Manual	Top	Top
<b>TEMP RANGE, °C (F)</b>				
Gravity cycle	98-135 (208-275)	98-135 (208-275)	Up to 134 (273)	Up to 134 (273)
Vacuum cycle	121-135 (250-275)	121-135 (250-275)	NA	NA
Steam flush- pressure pulse	NA	NA	NA	NA
CONTROLLER	Automatic	Automatic	Automatic	Automatic
RECORDER	Charge printer, strip chart, round chart, or PC software	Strip chart, round chart, or PC soft- ware	Optional	Optional
DOORS Operation	Single Manual	Single Manual	Single Manual	Single Manual
<b>INSTALLATION</b>				
Cabinet enclosed	Yes	Yes	No	No
Recessed in wall Pit mounted	No Yes	No Yes	No Floor mounted	No Floor mounted

Colons separate data on similar models of a device.

This is the first of  
two pages covering  
the above model(s).  
These specifications  
continue onto the  
next page.

Product Comparison Chart

MODEL	H&P LABORTECHNIK	H&P LABORTECHNIK	INTERNATIONAL PBI	INTERNATIONAL PBI
	Varioklav 75S : 135S	Varioklav 300E : 400E : 500E	ALFA : Ibromatic/Standard	FIFTY
<b>SUPPLY STEAM PRESS, kg/cm<sup>2</sup> (psig)</b>	1.4 or 2.5 (20 or 35.7)	1.4 or 2.5 (20 or 35.7)	NA	NA
<b>ELECTRICAL POWER</b>				
Gravity models, VAC	230, 50 Hz; 400, 3-phase	230, 50 Hz; 400, 3-phase	120, 240 : 120, 220, 240	220/380
Vacuum models, VAC	400, 3-phase	400, 3-phase	NA	NA
Steam flush- pressure pulse, VAC	NA	NA	NA	NA
<b>PLANNING &amp; PURCHASE</b>				
List price, std configuration	\$10,000-50,000	\$5,000-50,000	\$4,000 : \$2,500	\$5,000-7,000
Warranty	1 year, parts; 3 years, heating system; 5 years, pressure vessel	1 year, parts; 3 years, heating system; 5 years, pressure vessel	1 year, parts; 10 years, vessel and skirt	1 year, parts; 10 years, vessel and skirt
Delivery time, ARO Training	8 weeks 1/2 day on-site	8 weeks 1/2 day on-site	3 weeks No	4 weeks No
Year first sold Number installed USA/worldwide	2000 NA/not specified	1975 NA/not specified	1996 : 1975 Not specified/10 : Not specified/5,000	2000 Not specified
Fiscal year	January to December	January to December	January to December	January to December
<b>OTHER SPECIFICATIONS</b>	Exhaust air filtra- tion; sterilizers for high-security laboratories. Meets requirements of DIN.	Exhaust air filtra- tion; sterilizers for high-security laboratories. Meets requirements of DIN.	Complies with EC.	Complies with EC.

Colons separate data on similar models of a device.

**Product Comparison Chart**

<b>MODEL</b>	<b>INTERNATIONAL PBI</b>	<b>INTERNATIONAL PBI</b>	<b>INTERNATIONAL PBI</b>	<b>KSG</b>
	Koch Family	Olymatic/Orion : Zeus/Perseo	Vega	KSG 116
<b>WHERE MARKETED</b>	Worldwide	Worldwide	Worldwide	Worldwide
<b>FDA CLEARANCE</b>	Not specified	Not specified	Not specified	Not specified
<b>CE MARK (MDD)</b>	Yes	Yes	Yes	Yes
<b>AIR REMOVAL</b>	Gravity	Gravity	Vacuum	Fractionated pre-vacuum and post-drying vacuum
<b>CHAMBER SIZES</b> W x H x D, cm (in)	31 x 29 (12.2 x 11.4)	34.5 x 65 (13.6 x 25.6) : 50 x 80 (19.7 x 31.5)	40 x 60 (15.7 x 23.6), 50 x 70 (19.7 x 27.6)	32 x 34 x 63 (12.6 x 13.4 x 24.8)
<b>VOLUME,</b> m <sup>3</sup> (ft <sup>3</sup> )	0.023 (1)	0.065 (2.3) : 0.14 (4.9)	0.075 (2.6), 0.14 (4.9)	0.068 (2.4)
<b>CHAMBER MATERIAL</b>	Aluminum/AISI 304 stainless steel	AISI 304 stainless steel	AISI 316 stainless steel	Stainless steel V4A, material no. 1.4571
<b>LOADING</b>	Top	Top	Top	Not specified
<b>TEMP RANGE, °C (F)</b>				
Gravity cycle	121 (250)	Up to 134 (273)	Optional	NA
Vacuum cycle	NA	NA	Up to 138 (280.4)	Not specified (fixed programs)
Steam flush- pressure pulse	NA	NA	Optional	NA
<b>CONTROLLER</b>	Semiautomatic/ automatic	Automatic	Automatic	Automatic
<b>RECORDER</b>	No	Optional	Optional	Upon request
<b>DOORS</b> Operation	Single Manual	Single Manual	Single Manual	Single or double Manual
<b>INSTALLATION</b>				
Cabinet enclosed	No	No	No	Enclosed
Recessed in wall Pit mounted	No Floor mounted	No Floor mounted	No Floor mounted	Not specified Not specified

Colons separate data on similar models of a device.

**This is the first of two pages covering the above model(s). These specifications continue onto the next page.**

Product Comparison Chart

MODEL	INTERNATIONAL PBI	INTERNATIONAL PBI	INTERNATIONAL PBI	KSG
	Koch Family	Olymatic/Orion : Zeus/Perseo	Vega	KSG 116
<b>SUPPLY STEAM PRESS, kg/cm<sup>2</sup> (psig)</b>	NA	NA	NA	Self-made
<b>ELECTRICAL POWER</b>				
Gravity models, VAC	110, 220, 240	110, 220, 240	220/380	NA
Vacuum models, VAC	NA	NA	Optional	230/400, 15.5 kW
Steam flush- pressure pulse, VAC	NA	NA	Optional	NA
<b>PLANNING &amp; PURCHASE</b>				
List price, std configuration	\$500	\$10,000 : \$15,000	Not specified	Not specified
Warranty	1 year	1 year, parts; 10 years, vessel and skirt	1 year	1 year, parts and labor; 5 years, pressure vessel
Delivery time, ARO	3 weeks	3 weeks	4 weeks	1 month
Training	No	No	No	1 day
Year first sold	1982	1980 : 1988	1995	1995
Number installed USA/worldwide	4,000	Not specified/120 : Not specified/100	20/280	Not specified
Fiscal year	January to December	January to December	January to December	January to December
<b>OTHER SPECIFICATIONS</b>	Complies with EC.	Complies with EC.	Complies with EC.	None specified.

Colons separate data on similar models of a device.

## Product Comparison Chart

MODEL	KSG	LTE SCIENTIFIC	MATACHANA	MATACHANA
	KSG 666	Kestrel 200/315	S100	Series 500
WHERE MARKETED	Worldwide	Worldwide	Worldwide, except USA	Worldwide, except USA
FDA CLEARANCE	Not specified	No	No	No
CE MARK (MDD)	Not specified	Yes	Yes	Yes
AIR REMOVAL	Fractionated pre-vacuum and post-drying vacuum, optional gravity	Gravity, vacuum	Vacuum	Vacuum
CHAMBER SIZES W x H x D, cm (in)	67 x 71 x 65 (26.4 x 27.9 x 26.4)	66 x 66 x 66 (26 x 26 x 26), 66 x 66 x 72 (26 x 26 x 28.3)	34 x 34 x 63 (13.4 x 13.4 x 24.8)	50 x 50 x [66, 99] (19.7 x 19.7 x [26, 39])
VOLUME, m <sup>3</sup> (ft <sup>3</sup> )	0.31 (11)	0.2 (7.1), 0.315 (11.1)	0.071 (2.52)	0.16 (5.1) : 0.25 (8.7)
CHAMBER MATERIAL	Stainless steel V4A, material no. 1.4571	321 grade stainless steel	316L stainless steel	316L stainless steel
LOADING	Transfer cart	Shelf or trolley	Manual or cart	Cart
TEMP RANGE, °C (F)				
Gravity cycle	Not specified	100-137 (212-278.6)	NA	NA
Vacuum cycle	Not specified	100-137 (212-278.6)	121-134 (250-273)	121-134 (250-273)
Steam flush- pressure pulse	NA	NA	NA	NA
CONTROLLER	Automatic	Microprocessor	Microprocessor	Microprocessor
RECORDER	Upon request	3-channel	Digital printer, linear chart	Digital printer, linear chart
DOORS Operation	See footnote * Manual	Single or double Manual	Single or double Manual	Single or double Automatic
INSTALLATION				
Cabinet enclosed	Enclosed	Not specified	Yes	Yes
Recessed in wall Pit mounted	Not specified Not specified	Yes Not specified	Yes Yes	Yes Yes

Colons separate data on similar models of a device.  
\* Vertical or horizontal single/double door.

This is the first of  
two pages covering  
the above model(s).  
These specifications  
continue onto the  
next page.

Product Comparison Chart

MODEL	KSG	LTE SCIENTIFIC	MATACHANA	MATACHANA
	KSG 666	Kestrel 200/315	S100	Series 500
<b>SUPPLY STEAM PRESS, kg/cm<sup>2</sup> (psig)</b>	Self-made or domestic steam	3.5-bar minimum	Steam generator or enclosed external steam, 2.5-3 bar	Steam generator or enclosed external steam, 2.5-3 bar
<b>ELECTRICAL POWER</b>				
Gravity models, VAC	Not specified	220/240, 50 Hz; 415 VAC, 3-phase	NA	NA
Vacuum models, VAC	230/400, 40 kW	220/240, 50 Hz; 415 VAC, 3-phase	Depends on system	Depends on system
<b>Steam flush- pressure pulse, VAC</b>	NA	NA	NA	NA
<b>PLANNING &amp; PURCHASE</b>				
List price, std configuration	Upon request	£18,000-24,000 (US\$29,453-39,270)	Not specified	Not specified
Warranty	1 year, parts and labor; 5 years, pressure vessel	1 year	Not specified	Not specified
<b>Delivery time, ARO</b>	2-3 months	8-12 weeks	Not specified	Not specified
<b>Training</b>	2-3 days	Not specified	Not specified	Not specified
<b>Year first sold</b>	1990	1994	Not specified	Not specified
<b>Number installed USA/worldwide</b>	Not specified	Not specified	Not specified	Not specified
<b>Fiscal year</b>	January to December	January to December	January to December	January to December
<b>OTHER SPECIFICATIONS</b>	None specified.	Pulsed vacuum or pre-/post-air ballast option; protected liquid ring pump; steam generator in constant standby for faster cycle times; diagnostic system.	Menu-guided dialogue system; graphics displayed in real time. Meets requirements of 89/336/CEE, 89/392/CEE, and EN 285.	Meets requirements of 89/336/CEE, 89/392/CEE, and EN 285.

Colons separate data on similar models of a device.

## Product Comparison Chart

MODEL	MATACHANA	MATACHANA	MATACHANA	MMM
	Series 2000	Series S1000	Series S2000	Securex HP Series
WHERE MARKETED	Worldwide, except USA	Worldwide, except USA	Worldwide, except USA	Africa, Asia, Europe, South America
FDA CLEARANCE	No	No	No	Not specified
CE MARK (MDD)	Yes	Yes	Yes	Yes
AIR REMOVAL	Vacuum	Vacuum	Vacuum	Vacuum, by water-ring vacuum pump; optional gravity
CHAMBER SIZES W x H x D, cm (in)	90 x 144 x [120, 240, 360, 480] (35.4 x 56.7 x . [47.2, 94.5, 141.7, 189])	67 x 67 x [63, 99, 129, 173.5, 200] (62.4 x 26.4 x [24.8, 39, 50.8, 68.3, 78.7])	68 x 120 x [106, 136, 206] (26.8 x 47.2 x [41.7, 53.4, 81.1])	40 x 40 x 60 (15.7 x 15.7 x 23.6) : 60 x 60 x 60 (23.6 x 23.6 x 23.6) : 60 x 60 x 90 (23.6 x 23.6 x 35.4) : 60 x 60 x 120 (23.6 x 23.6 x 47.2) : 60 x 90 x 120 (23.6 x 35.4 x 47.2)
VOLUME, m <sup>3</sup> (ft <sup>3</sup> )	1.55 (54.7) : 3.1 (109.5) : 4.6 (162.4) : 6.2 (218.9)	0.28 (9.9) : 0.44 (15.6) : 0.58 (20.6) : 0.77 (27.3) : 0.89 (31.6)	0.86 (30.5) : 1.1 (39) : 1.67 (59.5)	0.14 (4.9) : 0.15 (5.3) : 0.31 (10.9) : 0.45 (15.9) : 0.61 (21.5) : 0.90 (31.8)
CHAMBER MATERIAL	316L stainless steel	316L stainless steel	316L stainless steel	AISI 316 T1
LOADING	Cart or automatic load/unload system	Cart or automatic load/unload system	Cart or automatic load/unload system	Loading cart, transport cart
TEMP RANGE, °C (F)				
Gravity cycle	NA	NA	NA	Optional
Vacuum cycle	121-134 (250-273)	121-134 (250-273)	121-134 (250-273)	121-134 (250-273)
Steam flush-pressure pulse	NA	NA	NA	NA
CONTROLLER	Microcomputer	Microcomputer	Microcomputer	Automatic
RECORDER	Digital printer, linear chart	Digital printer, linear chart	Digital printer, linear chart	Temperature/pressure record, batch printer *
DOORS Operation	Single or double Automatic	Single or double Automatic	Single or double Automatic	Single or double Automatic
INSTALLATION				
Cabinet enclosed	Yes	Yes	Yes	Yes
Recessed in wall Pit mounted	Yes Yes	Yes Yes	Yes Yes	Yes No

Colons separate data on similar models of a device.

\* Connection to external printer.

This is the first of two pages covering the above model(s). These specifications continue onto the next page.

**Product Comparison Chart**

<b>MODEL</b>	<b>MATACHANA</b>	<b>MATACHANA</b>	<b>MATACHANA</b>	<b>MMM</b>
	Series 2000	Series S1000	Series S2000	Securax HP Series
<b>SUPPLY STEAM PRESS, kg/cm<sup>2</sup> (psig)</b>	Steam generator or enclosed external steam, 2.5-3 bar	Steam generator or enclosed external steam, 2.5-3 bar	Steam generator or enclosed external steam, 2.5-3 bar	2.5 (35)
<b>ELECTRICAL POWER</b>				
<b>Gravity models, VAC</b>	NA	NA	NA	Not specified
<b>Vacuum models, VAC</b>	Depends on system	Depends on system	Depends on system	380
<b>Steam flush-pressure pulse, VAC</b>	NA	NA	NA	NA
<b>PLANNING &amp; PURCHASE</b>				
<b>List price, std configuration</b>	Not specified	Not specified	Not specified	Not specified
<b>Warranty</b>	Not specified	Not specified	Not specified	1 year, parts and labor
<b>Delivery time, ARO</b>	Not specified	Not specified	Not specified	3-4 months
<b>Training</b>	Not specified	Not specified	Not specified	Not specified
<b>Year first sold</b>	Not specified	Not specified	Not specified	1990
<b>Number installed USA/worldwide</b>	Not specified	Not specified	Not specified	NA/500
<b>Fiscal year</b>	January to December	January to December	January to December	January to December
<b>OTHER SPECIFICATIONS</b>	Dedicated to laboratory/hospital use; complies with EEC directives.	Dedicated to laboratory/hospital use; complies with EEC directives.	Dedicated to laboratory/hospital use; complies with EEC directives.	Customized programs available; optional automatic loading/unloading. Meets requirements of CEN, DIN, IEC, ISO, TUV, and VDE.

Colons separate data on similar models of a device.



## Product Comparison Chart

MODEL	NUVE	NUVE	OPPICI	OPPICI
	OT 4060	OT 4060V	Cylindrical Vertical	Rectangular Double Wall 3200
<b>WHERE MARKETED</b>	Worldwide	Worldwide	Central America, South America	Central America, South America
<b>FDA CLEARANCE</b>	No	No	No	No
<b>CE MARK (MDD)</b>	Yes	Yes	No	No
<b>AIR REMOVAL</b>	Gravity	Vacuum pump	Gravity	Vacuum
<b>CHAMBER SIZES</b> W x H x D, cm (in)	40 x 60 (15.7 x 23.6)	40 x 60 (15.7 x 23.6)	47 (dia) x 60 (18.5 x 23.6), 29 (dia) x 45 (11.4 x 17.7)	47 x 47 x 70 (18.5 x 18.5 x 27.6), 47 x 47 x 90 (18.5 x 18.5 x 35.4), 47 x 47 x 140 (18.5 x 18.5 x 55.1)
<b>VOLUME,</b> m <sup>3</sup> (ft <sup>3</sup> )	0.075 (2.6)	0.075 (2.6)	0.1 (3.5), 0.03 (1.06)	0.2 (7), 0.22 (7.8), 0.3 (10.6); other volumes by request
<b>CHAMBER MATERIAL</b>	Stainless steel	Stainless steel	316L stainless steel	316L stainless steel
<b>LOADING</b>	Top	Top	Trays, pan, or basket	Transfer cart
<b>TEMP RANGE, °C (F)</b>				
Gravity cycle	110-140 (230-284)	110-140 (230-284)	110-121 (212-250)	NA
Vacuum cycle	NA	Pre-vacuum/final vacuum	NA	110-135 (212-275)
Steam flush-pressure pulse	1	3	Gravity	By pump
<b>CONTROLLER</b>	Microprocessor	Microprocessor	Semiautomatic	Auto touchscreen
<b>RECORDER</b>	No	No	Optional	Printer
<b>DOORS</b> Operation	Single Manual	Single Manual	Single Manual	Single or double Vertical manual
<b>INSTALLATION</b>				
Cabinet enclosed	Floor mounted	Floor mounted	Yes	Yes
Recessed in wall	Not specified	Not specified	No	Yes
Pit mounted	Not specified	Not specified	No	Yes

Colons separate data on similar models of a device.

**This is the first of two pages covering the above model(s). These specifications continue onto the next page.**

Product Comparison Chart

MODEL	NUVE	NUVE	OPPICI	OPPICI
	OT 4060	OT 4060V	Cylindrical Vertical	Rectangular Double Wall 3200
<b>SUPPLY STEAM PRESS, kg/cm<sup>2</sup> (psig)</b>	3.5 (49.8)	3.5 (49.8)	1.8 (20), optional steam generator	4.5 (50), optional electric steam generator incorporated
<b>ELECTRICAL POWER Gravity models, VAC</b>	230, 50 Hz, 3-phase	NA	110, 120, 220, 240, 380, 440	110, 120, 220, 240, 380, 440
<b>Vacuum models, VAC</b>	NA	230, 50 Hz, 3-phase	110, 120, 220, 240, 380, 441	110, 120, 220, 240, 380, 441
<b>Steam flush-pressure pulse, VAC</b>	Not specified	Not specified	NA	NA
<b>PLANNING &amp; PURCHASE List price, std configuration</b>	€4,769 (US\$5,898)	€5,640 (US\$6,975)	\$4,500	\$27,000-40,000
<b>Warranty</b>	2 years	2 years	2 years, parts and labor	2 years, parts and labor
<b>Delivery time, ARO Training</b>	2-3 weeks No special training needed	2-3 weeks No special training needed	8-10 weeks 1 day, on-site	8-12 weeks 2 days, on-site
<b>Year first sold</b>	1994	1998	1963	1963
<b>Number installed USA/worldwide</b>	Not specified/1,310	Not specified/695	NA/340	NA/1,120
<b>Fiscal year</b>	January to December	January to December	January to December	January to December
<b>OTHER SPECIFICATIONS</b>	Full automatic control by micro-processor; digital display for programmable temperature and time parameters; sterilization temperature and time.	Full automatic control by micro-processor; digital display for programmable temperature and time parameters; sterilization temperature and time; final vacuum and drying time; maintenance-free vacuum pump; 0.22 µm filter at air-intake line.	Temperature controlled; optional gas-heated, external steam supply. Meets requirements of Health Ministry of Chile (ISP).	All programs changeable on touch-screen. Meets requirements of Health Ministry of Chile (ISP).

Colons separate data on similar models of a device.

## Product Comparison Chart

MODEL	PELTON & CRANE	PRIMUS STERILIZER	PRIORCLAVE	PRIORCLAVE
	Magna-Clave Model MC 100	PSS 500 Series and PSS 600 Series	Compact 60	EH 100 : EH 150 : EH 200
WHERE MARKETED	North America	Worldwide	Worldwide, except USA	Worldwide, except USA
FDA CLEARANCE	No	Yes	No	No
CE MARK (MDD)	No	Not specified	Yes	Yes
AIR REMOVAL	Gravity	Vacuum, gravity, vacuum-assisted gravity, prevacuum *	Gravity or vacuum	Gravity or vacuum
CHAMBER SIZES W x H x D, cm (in)	38.7 x 38.1 x 66 (15.3 x 15 x 26)	20 sizes from 40.6 x 40.6 x 66 (16 x 16 x 26) to 154.9 x 218.4 x 218.4 (61 x 86 x 86) and larger custom	35 (dia) x 62.5 (13.8 x 24.6)	50 (dia) x 54 (19.7 x 21.3) : 50 (dia) x 77 (19.7 x 30.3) : 50 (dia) x 102 (19.7 x 40.2)
VOLUME, m <sup>3</sup> (ft <sup>3</sup> )	0.08 (2.8)	0.11-7.4 (3.9-261.1) and up to 17 (600) custom	0.06 (2.1)	0.1 (3.7) : 0.15 (5.3) : 0.2 (7)
CHAMBER MATERIAL	Stainless steel	316L stainless steel chamber and door; 304 stainless steel jacket	316L stainless steel	316L stainless steel
LOADING	Removable bin/tray	Shelving, cart, transfer carriage **	Top	Front
TEMP RANGE, °C (F)				
Gravity cycle	121-130.6 (250-267)	121-135 (250-275), opt 70-135 (160-275) low temperature	105-138 (221-280)	105-138 (221-280)
Vacuum cycle	NA	121-135 (250-275)	Optional	Optional
Steam flush- pressure pulse	NA	1-6 PREVACS	Optional	Optional
CONTROLLER	Manual	Microcomputer and Pri-Matic Control	Microprocessor, Tactrol	Microprocessor, Tactrol
RECORDER	Optional 24 hr temp recorder	Thermal printer, 24-character	Printer option	Printer option
DOORS Operation	Single Manual	Single or double See footnote ***	Up and back Semiautomatic	Front Semiautomatic
INSTALLATION				
Cabinet enclosed	Yes	Yes	Yes	Yes
Recessed in wall	No	Yes	No	Optional
Pit mounted	No	>66 x 160 x 122 cm (26 x 63 x 48 in)	No	No

Colons separate data on similar models of a device.

\* Water ejector or vac pump.

\*\* Also floor loading carts for pit mounts.

\*\*\* Automatic door is standard on 66 x 91.3 x 99 cm (26 x 36 x 39 in) and larger units; optional on smaller units.

**This is the first of  
two pages covering  
the above model(s).  
These specifications  
continue onto the  
next page.**

Product Comparison Chart

MODEL	PELTON & CRANE	PRIMUS STERILIZER	PRIORCLAVE	PRIORCLAVE
	Magna-Clave Model MC 100	PSS 500 Series and PSS 600 Series	Compact 60	EH 100 : EH 150 : EH 200
<b>SUPPLY STEAM PRESS, kg/cm<sup>2</sup> (psig)</b>	1-1.7 (15-25)	3.5-5.6 (50-80)	Not specified	Not specified
<b>ELECTRICAL POWER</b>				
Gravity models, VAC	208/240, 50/60 Hz	110-120, 50/60 Hz, 10 A, 1-phase	Not specified * (3, 6 kW)	Not specified (7, 10.5 kW : 10.5 kW : 10.5-21 kW) *
Vacuum models, VAC	NA	Additional circuits may be required for vacuum pumps and boilers	NA	Not specified (7, 10.5 kW : 10.5 kW : 10.5-21 kW) *
Steam flush- pressure pulse, VAC	NA	NA	Optional	Optional
<b>PLANNING &amp; PURCHASE</b>				
List price, std configuration	\$16,900, \$18,500 w/stand and recorder	\$35,000-350,000	~\$8,700	~\$12,500 : \$14,500 : \$16,000
Warranty	1 year, parts	1 year, parts; 90 days, labor; 15 years, pressure vessel	1 year; 10 years, vessel	1 year; 10 years, vessel
Delivery time, ARO Training	4 weeks Not specified	14-120 days Included	6-8 weeks 1 day	8-10 weeks 1 day
Year first sold	1968	1990	1989	1988
Number installed USA/worldwide	6,396/NA	1,600 worldwide	NA/320	NA/290
Fiscal year	January to December	January to December	April to March	April to March
<b>OTHER SPECIFICATIONS</b>	Meets requirements of ASME Boiler and Pressure Vessel code.	Liquid cycle with auto-compensating slow exhaust; low- temp flowing steam models available; microcomputer con- trol package with cycle-advance; non- proprietary replace- ment parts; optional authorized operator security, custom control packages, and custom vessel size or design features. Meets requirements of ASME, CRN, ETL, FDA, and ISO 9001:2000.	Managed by Priorclave's Tactrol microprocessor sys- tem. Complies with all relevant European Directives and MDD.	Managed by Priorclave's Tactrol microprocessor sys- tem. Complies with all relevant European Directives and MDD.

Colons separate data on similar models of a device.

\* Power figures are given for electrically heated machines. Direct steam models are available.

## Product Comparison Chart

MODEL	PRIORCLAVE	PRIORCLAVE	PRIORCLAVE	PRIORCLAVE
	EV 100 : EV 150	EX V100 Top Loader	EX V150 Top Loader	RS 230 : RS 350 : RS 450 : RS 700
<b>WHERE MARKETED</b>	Worldwide, except USA	Africa, Asia, India, South America	Africa, Asia, India, South America	Worldwide, except USA
<b>FDA CLEARANCE</b>	No	No	No	No
<b>CE MARK (MDD)</b>	Yes	No	No	Yes
<b>AIR REMOVAL</b>	Gravity or vacuum	Gravity	Not specified	Gravity; vacuum optional
<b>CHAMBER SIZES</b> W x H x D, cm (in)	50 (dia) x 50 (19.7 x 19.7) : 50 (dia) x 74 (19.7 x 29.1)	50 (dia) x 50 (19.7 x 19.7)	50 (dia) x 74 (19.7 x 29.1)	58 x 60 x 60 (22.8 x 23.8 x 23.8) : 58 x 60 x 90 (22.8 x 23.8 x 35.4) : 67.5 x 75.5 x 90 (26.5 x 29.7 x 35) : 67.6 x 75.5 x 136 (26.5 x 29.7 x 53.5)
<b>VOLUME,</b> m <sup>3</sup> (ft <sup>3</sup> )	0.1 (3.5) : 0.15 (5.3)	0.1 (3.5)	0.1 (3.5)	0.23 (8.1) : 0.35 (12.4) : 0.45 (16.1) : 0.69 (24.4)
<b>CHAMBER MATERIAL</b>	316L stainless steel	316L stainless steel	316L stainless steel	316L stainless steel
<b>LOADING</b>	Top	Top	Top, manual	Front, manual
<b>TEMP RANGE, °C (F)</b>				
Gravity cycle	105-138 (221-280)	105-138 (221-280)	105-138 (221-280) *	105-138 (221-280)
Vacuum cycle	Optional	Not specified	Not specified	Optional
Steam flush- pressure pulse	Optional	Optional	Optional	Optional
<b>CONTROLLER</b>	Microprocessor, Tactrol	Automatic digital	Automatic digital	Microprocessor, Tactrol
<b>RECORDER</b>	Printer option	Recorder option	Recorder option	Printer option
<b>DOORS</b> Operation	Single action ** Semiautomatic	Single action Semiautomatic	Single action Semiautomatic	2 or 3 Bolt with safety locks ***
<b>INSTALLATION</b>				
Cabinet enclosed	Yes	Yes	Yes	Yes
Recessed in wall Pit mounted	No No	No No	No No	Optional No

Colons separate data on similar models of a device.

\* Power figures are given for electrically heated machines. Direct steam models are available.

\*\* Also up and back.

\*\*\* 3 bolts with safety locks on Models 450 and 700.

**This is the first of two pages covering the above model(s). These specifications continue onto the next page.**

Product Comparison Chart

MODEL	PRIORCLAVE	PRIORCLAVE	PRIORCLAVE	PRIORCLAVE
	EV 100 : EV 150	EX V100 Top Loader	EX V150 Top Loader	RS 230 : RS 350 : RS 450 : RS 700
<b>SUPPLY STEAM PRESS, kg/cm<sup>2</sup> (psig)</b>	Not specified	Yes (amount not specified)	Not specified	Not specified
<b>ELECTRICAL POWER</b>				
Gravity models, VAC	Not specified (7, 10.5 kW) *	Not specified (7-10.5 kW) *	Not specified * (7-10.5 kW)	Not specified (10.5 kW : 16 kW : 16-42 kW) *
Vacuum models, VAC	Not specified	Not specified (7-10.5 kW) *	Not specified (7-10.5 kW) *	Not specified (10.5 kW : 16 kW : 16-42 kW) *
Steam flush- pressure pulse, VAC	Optional	Optional	Optional	Optional
<b>PLANNING &amp; PURCHASE</b>				
List price, std configuration	~\$11,000 : ~\$13,000	~\$10,000	~\$11,000	\$24,000 : \$26,000 : \$31,000 : \$39,000
Warranty	1 year; 10 years, vessel	1 year; 10 years, vessel	1 year; 10 years, vessel	1 year; 10 years, vessel
Delivery time, ARO	6-8 weeks	8-10 weeks	8-10 weeks	10-12 weeks
Training	1 day	1 day	1 day	2 days
Year first sold	1988 : 1989	1988	1988	1993
Number installed USA/worldwide	NA/630	NA/70	NA/10	NA/115
Fiscal year	April to March	April to March	April to March	April to March
<b>OTHER SPECIFICATIONS</b>	Managed by Priorclave's Tactrol microprocessor sys- tem. Complies with all relevant European Directives and MDD.	None specified.	None specified.	Managed by Priorclave's Tactrol microprocessor sys- tem. Complies with all relevant European Directives.

Colons separate data on similar models of a device.

\* Power figures are given for electrically heated machines. Direct steam models are available.

## Product Comparison Chart

MODEL	RAUTOCLAVE	RODWELL	SAL PHARMA	SANYO
	Series 2000	Bulk Sterilizer	Autoclaves	MAC-350P
WHERE MARKETED	Africa	Worldwide	Worldwide	Worldwide
FDA CLEARANCE	No	No	Not specified	Not specified
CE MARK (MDD)	No	Yes	Yes	Not specified
AIR REMOVAL	Vacuum	Gravity or vacuum	Vacuum, vacuum and gravity, pressure/ vacuum pulse, steam flush, gas flush	Vacuum, magnetic valve
CHAMBER SIZES W x H x D, cm (in)	46 x 46 x 76 (18 x 18 x 30), 66 x 66 x 91.5 (26 x 26 x 36)	69.5 x 69.5 x 66 (27.4 x 27.4 x 26), 69.5 x 69.5 x 87.5 (27.4 x 27.4 x 34.4), 69.5 x 69.5 x 109 (27.4 x 27.4 x 42.9), 69.5 x 69.5 x 165 (27.4 x 27.4 x 65)	Various combinations of [510-1,500] x [510-2,100] x [710- 18,000] ([201-591] x [201-826.8] x [278- 7,087])	32 (dia) x 52 (12.5 x 20.5)
VOLUME, m <sup>3</sup> (ft <sup>3</sup> )	0.16 (5.6), 0.40 (14.1)	0.33-0.6 (11.7-21.2), varies	Ranges from 0.24 (8.5) to 56.61 (2,000)	0.041 (1.45)
CHAMBER MATERIAL	304L or 316L stain- less steel	316 or 321 stainless steel	316L stainless steel	304 stainless steel
LOADING	Trays, trolley, and transfer carriage	Front loading, sliding door **	External carriages *	Casters attached
TEMP RANGE, °C (F)				
Gravity cycle	115-121 (239-249.8)	100-138 (212-280)	Not specified	NA
Vacuum cycle	121-136 (249.8-276.8)	100-138 (212-280)	60 (140), 115 (230), 121 (250), 134 (273)	121-132 (250-270)
Steam flush- pressure pulse	Precondition ***	NA	NA	NA
CONTROLLER	Microprocessor (Mitsubishi)	Automatic	Automatic Omron PLC with touchscreen	Automatic
RECORDER	Digital strip chart or printer	Optional	Strip, data logger, touchscreen recorder	None
DOORS Operation	Single or double Automatic sliding	Single or double Sliding door	Single or double Air powered †	Single Manual
INSTALLATION				
Cabinet enclosed	Yes	Yes	Yes	Yes
Recessed in wall Pit mounted	Yes No	Yes Not specified	Yes Yes	Not specified Floor mounted

Colons separate data on similar models of a device.

\* Optional internal sliding shelf.

\*\* 1 or 2 doors; optional transfer cart.

\*\*\* Vacuum pressure pulses.

† Doors close upward, downward, or sideways.

This is the first of  
two pages covering  
the above model(s).  
These specifications  
continue onto the  
next page.

Product Comparison Chart

MODEL	RAUTOCLAVE	RODWELL	SAL PHARMA	SANYO
	Series 2000	Bulk Sterilizer	Autoclaves	MAC-350P
<b>SUPPLY STEAM PRESS, kg/cm<sup>2</sup> (psig)</b>	3.5-5.6 (50-80)	3.5-5.6 (50-80)	3.5-5.6 (50-80)	Self-heating
<b>ELECTRICAL POWER</b>				
Gravity models, VAC	220, 380	120	120/210/240/380/415 (for all models)	NA
Vacuum models, VAC	220, 380	Not specified	120/210/240/380/415 (for all models)	110, 120, 220, 240
Steam flush- pressure pulse, VAC	220, 380	NA	NA	NA
<b>PLANNING &amp; PURCHASE</b>				
List price, std configuration	Not specified	£20,000-80,000 (US\$18,160-72,640)	On application	Not specified
Warranty	1 year, parts and labor; 5 years, vessel	1 year, parts and labor; 10 years, pressure vessel	1 year, parts and labor; 10 years, pressure vessel	Not specified
Delivery time, ARO	8-12 weeks	20 weeks	~8-16 weeks	Not specified
Training	Not specified	1 day	See footnote *	Not specified
Year first sold	1991	2002	1970	Not specified
Number installed USA/worldwide	NA/75	50/100	Not specified/ ~1,000	Not specified
Fiscal year	March to February	September to August	April to March	Not specified
<b>OTHER SPECIFICATIONS</b>	Customized controls (PIN code protected). Meets requirements of ASME 8, BS 2654, RSA/CIF- 31-98-A-98.	None specified.	Microprocessor controlled with validated software package; wide range of standard programs for proven cycles; self-programmable; microprocessor use restricted by password access. RS422 serial port. Meets requirements of ASME, BS, and CGMP.	Safety valve; elec- tronic limiter; thermal fuse; weighs 120 kg (265 lb).

Colons separate data on similar models of a device.  
\* Operator and engineer training given after completion of validation.



## Product Comparison Chart

MODEL	SANYO	SANYO	SANYO	SANYO
	MAC-3700	MLS-2420 : MLS-2420U	MLS-3020	MLS-3020U
<b>WHERE MARKETED</b>	Worldwide	Worldwide	Worldwide	Worldwide
<b>FDA CLEARANCE</b>	Not specified	Not specified	Not specified	Not specified
<b>CE MARK (MDD)</b>	Not specified	Yes	Not specified	Yes
<b>AIR REMOVAL</b>	Vacuum, magnetic valve, steam trap	Gravity, magnetic valve	Gravity, magnetic valve	Gravity, magnetic valve
<b>CHAMBER SIZES</b> W x H x D, cm (in)	37 (dia) x 74 (14.6 x 29.1)	24 (dia) x 45 (9.4 x 17.7)	30 (dia) x 67 (11.8 x 26.8)	30 (dia) x 67 (11.8 x 26.8)
<b>VOLUME,</b> m <sup>3</sup> (ft <sup>3</sup> )	0.08 (2.83)	0.02 (0.71)	0.048 (1.69)	0.048 (1.69)
<b>CHAMBER MATERIAL</b>	304 stainless steel	304 stainless steel	304 stainless steel	304 stainless steel SA 240
<b>LOADING</b>	Transfer cart	Casters attached	Caster attached	Caster attached
<b>TEMP RANGE, °C (F)</b> Gravity cycle	NA	105-121 (221-250) : 105-126 (221-258.8)	105-121 (221-250)	105-126 (221-258.8)
Vacuum cycle	126 (258.8)	NA	NA	NA
Steam flush-pressure pulse	NA	NA	NA	NA
<b>CONTROLLER</b>	Automatic	Automatic	Automatic	Automatic
<b>RECORDER</b>	None	None	None	None
<b>DOORS</b> Operation	Single Manual	Single Manual	Single Manual	Single Manual
<b>INSTALLATION</b> Cabinet enclosed	Yes	Yes	Yes	Yes
Recessed in wall Pit mounted	Not specified Floor mounted	Not specified Floor mounted	Not specified Floor mounted	Not specified Floor mounted

Colons separate data on similar models of a device.

**This is the first of two pages covering the above model(s). These specifications continue onto the next page.**

Product Comparison Chart

MODEL	SANYO	SANYO	SANYO	SANYO
	MAC-3700	MLS-2420 : MLS-2420U	MLS-3020	MLS-3020U
<b>SUPPLY STEAM PRESS, kg/cm<sup>2</sup> (psig)</b>	1.6 (22.76), boiler affixed	Self-heating	Self-heating	Self-heating
<b>ELECTRICAL POWER</b>				
Gravity models, VAC	NA	110, 120, 220, 240 : 120, 208, 230	110, 120, 220, 240	120, 208, 230
Vacuum models, VAC	220	NA	NA	NA
Steam flush- pressure pulse, VAC	NA	NA	NA	NA
<b>PLANNING &amp; PURCHASE</b>				
List price, std configuration	Not specified	Not specified	Not specified	Not specified
Warranty	Not specified	Not specified	Not specified	Not specified
Delivery time, ARO	Not specified	Not specified	Not specified	Not specified
Training	Not specified	Not specified	Not specified	Not specified
Year first sold	Not specified	Not specified	Not specified	Not specified
Number installed USA/worldwide	Not specified	Not specified	Not specified	Not specified
Fiscal year	Not specified	Not specified	Not specified	Not specified
<b>OTHER SPECIFICATIONS</b>	Safety valve; elec- tronic limiter; weighs 325 kg (717 lb).	Safety valve; door lamp; door switch; weighs 47 kg (103 lb); MLS-2420U also has handle switch.	Safety valve; door lamp; limiter; weighs 69 kg (152 lb).	Safety valve; door lamp; handle switch; door switch; weighs 69 kg (152 lb).

Colons separate data on similar models of a device.

Product Comparison Chart

MODEL	SAUTER FAILED TO RESPOND * 3-3-S	SAUTER FAILED TO RESPOND * 6-6-HS	SAUTER FAILED TO RESPOND * 9-6-HS	STERILIZING SYSTEMS 100, 200, 300, 400 Series
WHERE MARKETED	Asia, Europe	Asia, Europe	Asia, Europe	Canada, Mexico, USA
FDA CLEARANCE	Not specified	Not specified	Not specified	No
CE MARK (MDD)	Yes	Yes	Yes	No
AIR REMOVAL	Gravity, vacuum	Gravity, vacuum	Gravity, vacuum	Gravity, ejector vacuum, vacuum pump
CHAMBER SIZES W x H x D, cm (in)	30 x 30 x [60, 90] (11.8 x 11.8 x [23.6, 35.4])	60 x 60 x [60, 90, 120] (23.6 x 23.6 x [23.6, 35.4, 47.2]), 90 x 60 x [90, 120, 180] (35.4 x 23.6 x [35.4, 47.2, 70.9])	90 x 60 x [90, 120, 180] (35.4 x 23.6 x [35.4, 47.2, 70.9])	40.6 x 40.6 x 66 (16 x 16 x 26), 66 x 66 x 66 (26 x 26 x 26), 66 x 66 x 121.9 (26 x 26 x 48), 50.8 x 50.8 x 96.5 (20 x 20 x 38), 61 x 91.4 x 91.4 (24 x 36 x 36) **
VOLUME, m <sup>3</sup> (ft <sup>3</sup> )	0.06 (2.1), 0.10 (2.8)	0.22 (7.7), 0.33 (11.7), 0.44 (15.5), 0.49 (17.3), 0.65 (22.9), 0.98 (34.6)	0.49 (17.3), 0.65 (22.9), 0.98 (34.6)	0.51 (18), 0.68 (24), 0.85 (30)
CHAMBER MATERIAL	AISI 316L chrome nickel steel	AISI 316L chrome nickel steel	AISI 316L chrome nickel steel	Nickel-clad steel
LOADING	Pull-out shelves, 50% extension	Transfer carts	Floor carts	Transfer cart
TEMP RANGE, °C (F)				
Gravity cycle	120 (248)	120 (248)	120 (248)	121-135 (250-275)
Vacuum cycle	105-134 (221-273)	105-134 (221-273)	105-134 (221-273)	121-135 (250-275)
Steam flush- pressure pulse	NA	NA	NA	Adjustable temp
CONTROLLER	Automatic	Automatic	Automatic	Computer control
RECORDER	A-4 Hewlett-Packard InkJet printer	A-4 Hewlett-Packard InkJet printer	A-4 Hewlett-Packard InkJet printer	Printer
DOORS Operation	Single or double Manual	Single or double Powered	Double Powered	Single or double Manual or automatic
INSTALLATION				
Cabinet enclosed	Yes	Yes	Yes	Not specified
Recessed in wall Pit mounted	Yes Floor mounted	Yes Floor mounted	Yes Pit mounted	Not specified Not specified

Colons separate data on similar models of a device.

\* Specifications current as of July 2003.

\*\* Also 61 x 91.4 x 121.9 (24 x 36 x 48), 61 x 91.4 x 152.4 (24 x 36 x 60), 91.4 x 106.7 x 213.4 (36 x 42 x 84), and 106.7 x 121.9 x 243.8 (42 x 48 x 96).

This is the first of two pages covering the above model(s). These specifications continue onto the next page.

Product Comparison Chart

MODEL	SAUTER FAILED TO RESPOND * 3-3-S	SAUTER FAILED TO RESPOND * 6-6-HS	SAUTER FAILED TO RESPOND * 9-6-HS	STERILIZING SYSTEMS 100, 200, 300, 400 Series
<b>SUPPLY STEAM PRESS, kg/cm<sup>2</sup> (psig)</b>	2.5-3.0 (49.7)	2.5-3.0 (49.7)	2.5-3.0 (41.4-49.7)	3.5-5.6 (50-80)
<b>ELECTRICAL POWER</b>				
Gravity models, VAC	230/400, 50 Hz	230/400, 50 Hz	230/400, 50 Hz	120
Vacuum models, VAC	230/400, 50 Hz	230/400, 50 Hz	230/400, 50 Hz	Not specified
Steam flush- pressure pulse, VAC	NA	NA	NA	Adjustable pressure, vacuum, and temp
<b>PLANNING &amp; PURCHASE</b>				
List price, std configuration	Not specified	Not specified	Not specified	\$15,000-150,000
Warranty	1 year, parts and labor	1 year, parts and labor	1 year, parts and labor	1 year, parts and labor
Delivery time, ARO Training	12-16 weeks 1 day on-site	12-16 weeks 1 day on-site	12-16 weeks 1 day on-site	6-8 weeks Not specified
Year first sold Number installed USA/worldwide	1977 NA/~150	1978 NA/~320	1978 NA/~70	1975 400 total
Fiscal year	January to December	January to December	January to December	January to December
<b>OTHER SPECIFICATIONS</b>	Control panel with integrated LCD; optional central data administra- tion with PC and bar-code reader. Meets requirements of CE, DIN, EN, ISO, and TUV.	Control panel with integrated LCD; optional central data administra- tion with PC and bar-code reader. Meets requirements of CE, DIN, EN, ISO, and TUV.	Control panel with integrated LCD; optional central data administration with PC and bar-code reader. Meets requirements of CE, DIN, EN, ISO, and TUV.	Air pressure; jacket cooldown; water- spray cooldown; built according to UL guidelines.

Colons separate data on similar models of a device.  
\* Specifications current as of July 2003.

## Product Comparison Chart

MODEL	STERIS	STERIS	STERIS	STERIS
	Century Medium Sterilizer 26 x 26	Century Medium Sterilizer 26 x 37.5	Century Small Sterilizer	Eagle 3000 Series Floor Loading
WHERE MARKETED	Worldwide	Worldwide	Worldwide	Worldwide
FDA CLEARANCE	Not specified	Not specified	Not specified	Not specified
CE MARK (MDD)	Not specified	Not specified	Not specified	Not specified
AIR REMOVAL	Steam flush-pressure pulse, vacuum and gravity	Steam flush-pressure pulse, vacuum and gravity	Gravity only or vacuum and gravity combination	Vacuum and gravity combination
CHAMBER SIZES W x H x D, cm (in)	66 x 66 x 99.1 (26 x 26 x 39), 66 x 66 x 125 (26 x 26 x 49), 66 x 66 x 155 (26 x 26 x 61)	66 x 95.3 x 91.4 (26 x 37.5 x 36), 66 x 95 x 121.9 (26 x 37.5 x 48), 66 x 95 x 152.4 (26 x 37.5 x 60)	40.6 x 40.6 x 66 (16 x 16 x 26), 50.8 x 50.8 x 96.5 (20 x 20 x 38)	66 x 157.5 x 106.7 (26 x 62 x 42), 66 x 157.5 x 193 (26 x 62 x 76)
VOLUME, m <sup>3</sup> (ft <sup>3</sup> )	0.43 (15.2), 0.54 (19.1), 0.68 (23.8)	0.579 (20.4), 0.764 (27), 0.957 (33.8)	0.109 (3.85), 0.249 (8.79)	1.1 (40), 2 (71)
CHAMBER MATERIAL	Stainless steel	Stainless steel	Stainless steel	Duplex alloy
LOADING	Rack and shelves or car and carriage	Rack and shelves or car and carriage	Rack and shelves or car and carriage	Floor cart
TEMP RANGE, °C (F)				
Gravity cycle	121-132 (250-270)	121-132 (250-270)	121-132 (250-270)	121-132 (250-270)
Vacuum cycle	121-135 (250-275)	121-132 (250-270)	121-134 (250-273)	132-138 (270-280)
Steam flush-pressure pulse	121-132 (250-270)	121-132 (250-270)	121-132 (250-270)	NA
CONTROLLER	Automatic	Automatic	Automatic	Automatic
RECORDER	Impact printer	Impact printer	Impact printer	Printer
DOORS Operation	Single or double Power	Single or double Manual or power	Single or double Power	Single or double Manual or power
INSTALLATION				
Cabinet enclosed	Yes	Yes	Yes	No
Recessed in wall Pit mounted	Yes No	Yes No	Yes No	Yes Yes

Colons separate data on similar models of a device.

**This is the first of two pages covering the above model(s). These specifications continue onto the next page.**

Product Comparison Chart

MODEL	STERIS	STERIS	STERIS	STERIS
	Century Medium Sterilizer 26 x 26	Century Medium Sterilizer 26 x 37.5	Century Small Sterilizer	Eagle 3000 Series Floor Loading
<b>SUPPLY STEAM PRESS, kg/cm<sup>2</sup> (psig)</b>	3.5-5.6 (50-80)	3.5-5.6 (50-80)	3.5-5.6 (50-80)	3.5-5.6 (50-80)
<b>ELECTRICAL POWER</b>				
Gravity models, VAC	NA	NA	120 VAC	120
Vacuum models, VAC	Vacuum pump 208/240, 50/60 Hz, 6A 3-phase or 480, 50/60 Hz, 34 3-phase	Vacuum pump 208/240, 50/60 Hz, 6A 3-phase or 480, 50/60 Hz, 34 3-phase	120 VAC	120
Steam flush-pressure pulse, VAC	Yes	Yes	NA	NA
<b>PLANNING &amp; PURCHASE</b>				
List price, std configuration	Not specified	Not specified	\$50,000-85,000	Not specified
Warranty	1 year, parts and labor; 2 years, gasket; 15 years, pressure vessel	1 year, parts and labor; 2 years, gasket; 15 years, pressure vessel	1 year, parts and labor; 2 years, gasket; 15 years, pressure vessel	1 year, parts and labor; 15 years, pressure vessel
Delivery time, ARO Training	4 weeks On-site in-service	4 weeks On-site in-service	4 weeks On-site in-service	4 weeks On-site in-service
Year first sold	2001	2001	1994	1993
Number installed USA/worldwide	Not specified	Not specified	Not specified	Not specified
Fiscal year	April to March	April to March	April to March	April to March
<b>OTHER SPECIFICATIONS</b>	Touch-sensitive control; printer and paper take-up; elliptical chamber; cycle safeguards to prevent incorrect temperature parameters; cycle lockout against unauthorized change; automatic utility shutdown. Meets requirements of ASME, CSA, EMC Directive, ETL, Low Voltage Directive, seismic preapproval.	Touch-sensitive control; printer and paper take-up; manual hinged-door locking mechanism; elliptical chamber; cycle safeguards to prevent incorrect temperature parameters; cycle lockout against unauthorized change; automatic utility shutdown. Meets requirements of ASME, CSA, EMC Directive, ETL, Low Voltage Directive, seismic preapproval.	Touch-sensitive control; printer and paper take-up; footpedal-activated vertical sliding door for hands-free loading and unloading; cycle safeguards to prevent incorrect temperature parameters; cycle lockout against unauthorized change; automatic utility shutdown. Meets requirements of ASME, CSA, EMC Directive, ETL, Low Voltage Directive, seismic preapproval.	Printer and paper take-up; cycle safeguards to prevent incorrect temperature parameters; cycle lockout against unauthorized use; automatic utility shutdown. Meets requirements of ASME, CSA, EMC Directive, ETL, and Low Voltage Directive.

Colons separate data on similar models of a device.

## Product Comparison Chart

MODEL	STERIS	TECNO-GAZ	TOMY TECH FAILED TO RESPOND *	TUTTNAUER
	Millennium Sterilizer	Steam Autoclave "Europa B"	ES-315	Gravity & Pre-Vacuum Steam Sterilizers
WHERE MARKETED	USA	Europe, Far East, Middle East	Asia, Europe, North America, South America	Worldwide
FDA CLEARANCE	Not specified	Submitted	Not specified	Yes
CE MARK (MDD)	Not specified	Yes	Not specified	Yes
AIR REMOVAL	Steam flush-pressure pulse	Vacuum pump	Gravity	Gravity or pre-vacuum
<b>CHAMBER SIZES</b> W x H x D, cm (in)	40.6 x 40.6 x 66 (16 x 16 x 26), 50.8 x 50.8 x 96.5 (20 x 20 x 38)	24.5 x 32 (9.6 x 12.6)	32.5 (dia) x 63.5 (H) (12.8 x 25)	41 x 41 x 73 (16 x 16 x 29) : 51 x 51 x 97 (20 x 20 x 38.2) : 61 x 61 x 93 (24 x 24 x 36) : 61 x 61 x 123 (24 x 24 x 48) : 61 x 61 x 153 (24 x 24 x 60)
<b>VOLUME,</b> m <sup>3</sup> (ft <sup>3</sup> )	0.109 (3.85), 0.249 (8.79)	17 L	0.053 (1.76)	0.12 (4.2) : 0.25 (8.8) : 0.35 (11.1) : 0.45 (15.9) : 0.57 (20.1)
CHAMBER MATERIAL	Stainless steel	BO4 stainless steel	Stainless steel	316L stainless steel
LOADING	Rack and shelves or car and carriage	Not specified	Basket	Transfer cart, rack, and shelves
<b>TEMP RANGE, °C (F)</b>				
Gravity cycle	121-132 (250-270)	NA	105-132 (221-270) for sterilization **	70-138 (158-280)
Vacuum cycle	121-132 (250-270)	121-134 (250-273)	NA	70-138 (158-280)
Steam flush-pressure pulse	121-132 (250-270)	NA	NA	Yes
CONTROLLER	Automatic	Automatic	Automatic, micro-processor controlled	Automatic, optional PC software
RECORDER	Printer	Digital strip chart	Optional	Printer or optional strip chart
<b>DOORS</b>				
Operation	Single or double Power	Not specified Not specified	Single Not specified	Single or double Manual or power
<b>INSTALLATION</b>				
Cabinet enclosed	Yes	Yes	No	Yes
Recessed in wall Pit mounted	Yes No	No No	No Mobile floor-standing	Yes Yes

Colons separate data on similar models of a device.  
\* Specifications current as of July 2003.  
\*\* 55-95°C (131-203°F) for warming/heating.

**This is the first of two pages covering the above model(s). These specifications continue onto the next page.**

Product Comparison Chart

MODEL	STERIS	TECNO-GAZ	TOMY TECH FAILED TO RESPOND *	TUTTNAUER
	Millennium Sterilizer	Steam Autoclave "Europa B"	ES-315	Gravity & Pre-Vacuum Steam Sterilizers
<b>SUPPLY STEAM PRESS, kg/cm<sup>2</sup> (psig)</b>	3.5-5.6 (50-80)	3.5-5.6 (50-80)	NA	3.5-5.6 (50-80)
<b>ELECTRICAL POWER</b>				
Gravity models, VAC	120	230, 50/60 Hz	110-240	120/230/380
Vacuum models, VAC	120	As specified for vacuum pumps	NA	120/230/380
Steam flush-pressure pulse, VAC	NA	NA	NA	Not specified
<b>PLANNING &amp; PURCHASE</b>				
List price, std configuration	Not specified	Not specified	\$5,000-6,000	\$35,000-95,000
Warranty	1 year, parts and labor; 2 years, gasket; 15 years, pressure vessel	5 years, parts	1 year	1 year, parts and labor; 15 years, pressure vessel
Delivery time, ARO	4 weeks	3-4 weeks	3-4 weeks	Not specified
Training	On-site in-service	2 days on-site	Not specified	Not specified
Year first sold	1998	1995	Not specified	1960
Number installed USA/worldwide	Not specified/NA	NA/20,000	Not specified	100/5,000
Fiscal year	April to March	January to December	Not specified	Not specified
<b>OTHER SPECIFICATIONS</b>	Touch-sensitive control; printer and paper take-up; cycle safeguards to prevent incorrect temperature parameters; cycle lockout against unauthorized use; automatic utility shutdown. Meets requirements of ASME, CSA, EMC Directive, ETL, Low Voltage Directive, seismic preapproval.	Meets requirements of ETL and TUV.	None specified.	Electric steam generator available for all models; customized sizes available. Meets requirements of ASME, TUV, and UL.

Colons separate data on similar models of a device.  
\* Specifications current as of July 2003.



## Product Comparison Chart

MODEL	TUTTNAUER	WESA	XINHUA FAILED TO RESPOND *	XINHUA FAILED TO RESPOND *
	Gravity & Pre-Vacuum Steam Sterilizers	Rectangular Double Wall Sterilizers	EOG Sterilizer	Motorized Door Vacuum Sterilizer
WHERE MARKETED	Worldwide	Worldwide	Worldwide	Worldwide
FDA CLEARANCE	Yes	No	Not specified	Not specified
CE MARK (MDD)	Yes	Yes	Not specified	Not specified
AIR REMOVAL	Gravity or pre- vacuum	Vacuum, gravity, steam flush-pressure pulse	Ethylene oxide gas	Vacuum
CHAMBER SIZES W x H x D, cm (in)	61 x 91 x 93 (24 x 36 x 36) : 61 x 91 x 123 (24 x 36 x 48) : 61 x 91 x 153 (24 x 36 x 60) : 61 x 91 x 183 (24 x 36 x 72)	Various sizes available	75 x 45 x 40 (29.5 x 17.7 x 15.7); 125 x 45 x 40 (49.2 x 17.7 x 15.7); 120 x 61 x 91 (47.2 x 24 x 35.8)	170 x 61 x 91 (66.9 x 24 x 35.8) : 150 x 68 x 108 (59.1 x 26.8 x 42.5) : 150 x 68 x 148 (59.1 x 26.8 x 58.3)
VOLUME, m <sup>3</sup> (ft <sup>3</sup> )	0.52 (18.4) : 0.68 (24) : 0.85 (30) : 1.01 (36)	From 0.05 (1.8) to 4 (141.2)	0.13 (4.6), 0.22 (7.8), 0.6 (21.2)	1.0 (35.3), 1.2 (42.4), 1.5 (53)
CHAMBER MATERIAL	316L stainless steel	AISI 316 Ti or 316L stainless steel	304 stainless steel	304 stainless steel
LOADING	Transfer cart, rack, and shelves	Shelving or carts, transfer carriage	Transfer carriage	Transfer cart/ carriage
TEMP RANGE, °C (F)				
Gravity cycle	70-138 (158-280)	90/135 (194/275)	NA	NA
Vacuum cycle	70-138 (158-280)	116/135 (240/275)	38-63	121-134 (249.8- 273)
Steam flush- pressure pulse	Yes	116/135 (240/275)	NA	NA
CONTROLLER	Automatic, optional PC software	PC with touchscreen	Automatic	Automatic
RECORDER	Printer or optional strip chart	Printer and inform- atic backup	Digital strip chart	Digital strip chart
DOORS Operation	Single or double Manual or power	Single or double Manual or power sliding (right/left)	Single or double Manual or motorized	Single or double Motorized
INSTALLATION				
Cabinet enclosed	Yes	Yes	Yes	Yes
Recessed in wall Pit mounted	Yes Yes	Yes Yes (or recessed floor)	Yes Yes	Yes Yes

Colons separate data on similar models of a device.  
\* Specifications current as of July 2003.

**This is the first of  
two pages covering  
the above model(s).  
These specifications  
continue onto the  
next page.**

Product Comparison Chart

MODEL	TUTTNAUER	WESA	XINHUA FAILED TO RESPOND *	XINHUA FAILED TO RESPOND *
	Gravity & Pre-Vacuum Steam Sterilizers	Rectangular Double Wall Sterilizers	EOG Sterilizer	Motorized Door Vacuum Sterilizer
<b>SUPPLY STEAM PRESS, kg/cm<sup>2</sup> (psig)</b>	3.5-5.6 (50-80)	3-4 (42.7-56.9)	0.5-0.7	3-5 (42.7-71.1)
<b>ELECTRICAL POWER</b>				
Gravity models, VAC	120/230/380	220/380-400	NA	NA
Vacuum models, VAC	120/230/380	220/380-400	220/380	220/380
Steam flush- pressure pulse, VAC	Not specified	220/380-400	NA	NA
<b>PLANNING &amp; PURCHASE</b>				
List price, std configuration	\$40,000-110,000	€46,000 (US\$48,619)	\$15,000-40,000	\$20,000-40,000
Warranty	1 year, parts and labor; 15 years, pressure vessel	1 year, parts and labor; 10 years, pressure vessel	1 year, parts and labor	1 year, parts and labor; 15 years, pressure vessel
Delivery time, ARO Training	90-120 days Classes and on-site available	Not specified Not specified	3-8 weeks 1-2 days on-site	3-5 weeks 1-2 days on-site
Year first sold Number installed USA/worldwide	1960 100/5,000	1986 0/~500	2002 Not specified	1985 2
Fiscal year	Not specified	January to December	January to December	January to December
<b>OTHER SPECIFICATIONS</b>	Electric steam generator available for all models; customized sizes available. Meets requirements of ASME, TUV, and UL.	Custom cycles and processes; custom sizes. Meets requirements of DIN 58946, EN 285, ISO 9001, NFS 90320, and TUV. Chamber manufacturing meets requirements of EN 97/23.	None specified.	None specified.

Colons separate data on similar models of a device.

\* Specifications current as of July 2003.

## Product Comparison Chart

MODEL	XINHUA FAILED TO RESPOND *	ZIRBUS APPARATEBAU
	Pulse Vacuum Sterilizer	Bulk Sterilizer Series
WHERE MARKETED	Worldwide	Asia, Europe, North America, South America
FDA CLEARANCE	Not specified	Not specified
CE MARK (MDD)	Not specified	Not specified
AIR REMOVAL	Vacuum	Gravity, vacuum, prevacuum
<b>CHAMBER SIZES</b> W x H x D, cm (in)	120 x 61 x 91 (47.2 x 24 x 35.8) : 170 x 68 x 108 (66.9 x 26.8 x 42.5) : 210 x 68 x 148 (82.7 x 26.8 x 58.3)	65 x 65 x 66 (25.6 x 25.6 x 26) : 65 x 65 x 96 (25.6 x 25.6 x 37.8) : 65 x 65 x 126 (25.6 x 25.6 x 49.6) : 65 x 65 x 156 (25.6 x 25.6 x 61.4) : 40 x 56 x 65 (15.7 x 22 x 25.6) **
<b>VOLUME,</b> m <sup>3</sup> (ft <sup>3</sup> )	0.6 (21.2), 1.0 (35.3), 2.5 (88.3)	0.08-0.65 (2.67-21.67)
CHAMBER MATERIAL	304 stainless steel	1.4571 stainless steel
LOADING	Transfer cart/ carriage	Transfer cart
<b>TEMP RANGE, °C (F)</b>		
Gravity cycle	NA	103-135 (217.4-275)
Vacuum cycle	121-134 (249.8- 273)	80-135 (176-275)
Steam flush- pressure pulse	NA	NA
CONTROLLER	Automatic	Automatic, micro- processor/computer ***
RECORDER	Digital strip chart	3- or 6-channel point printer; screen recorder
<b>DOORS</b> Operation	Single or double Manual or motorized	Single and double Automatic and manual (heated) †
<b>INSTALLATION</b>		
Cabinet enclosed	Yes	Yes
Recessed in wall	Yes	Yes
Pit mounted	Yes	Yes

Colons separate data on similar models of a device.

\* Specifications current as of July 2003.

\*\* Customized sizes also available.

\*\*\* Touchscreen panel.

† With inflatable gasket.

This is the first of  
two pages covering  
the above model(s).  
These specifications  
continue onto the  
next page.

Product Comparison Chart

MODEL	XINHUA FAILED TO RESPOND *	ZIRBUS APPARATEBAU
	Pulse Vacuum Sterilizer	Bulk Sterilizer Series
<b>SUPPLY STEAM PRESS, kg/cm<sup>2</sup> (psig)</b>	3-5 (42.7-71.1)	3.5-5 (49.7-71.1) soft-steam generator
<b>ELECTRICAL POWER Gravity models, VAC</b>	NA	220/380 (or customer specified)
<b>Vacuum models, VAC</b>	220/380	220/380 (or customer specified)
<b>Steam flush-pressure pulse, VAC</b>	NA	NA
<b>PLANNING &amp; PURCHASE</b>		
<b>List price, std configuration</b>	\$20,000-40,000	\$30,000-150,000
<b>Warranty</b>	1 year, parts and labor; 15 years, pressure vessel	1 year
<b>Delivery time, ARO Training</b>	3-5 weeks 1-2 days on-site	2-3 months Available
<b>Year first sold</b>	1985	1990
<b>Number installed USA/worldwide</b>	2	Not specified/>500
<b>Fiscal year</b>	January to December	January to December
<b>OTHER SPECIFICATIONS</b>	None specified.	Temperature-dependent door lock according to DIN/TRB; optional shelves, loading and transport trolleys, quick-recooling condensate sterilization, exhaust air filtration, interface for data processing on a PC, including software validation, is possible. Meets requirements of DIN, EN, TUV, and VDE.

Colons separate data on similar models of a device.  
\* Specifications current as of July 2003.