



Horizontal Steam Sterilizers



# Horizontal Steam Sterilizers for Laboratory & Scientific Applications

Sterilization in a laboratory environment has its unique requirements. The types of loads that need to be sterilized are varied and include liquids, glassware, animal bedding and feed, instruments, porous loads and additional laboratory items.

Choosing the right steam sterilizer depends on several considerations: the types of loads, frequency of use, available services and load volumes. The Tuttnauer line of laboratory autoclaves successfully meets the stringent sterilization requirements posed by the most demanding facilities throughout the world. To maximize "uptime," we manufacture our complete line of sterilizers using reliable, non-proprietary components. A wide range of upgrades are available, including flexible door designs, advanced cycle options and clean steam piping packages. Tuttnauer offers a full range of sterilizer models designed to cover a large field of applications in laboratories and research facilities, serving the academic, biotechnological, food and animal care markets.





## Construction

### Chamber and Doors

The fully jacketed chamber and doors are constructed from long lasting 316L grade stainless steel material, with superior corrosion resistance. 316Ti is also available. The autoclave doors are designed with a number of independent mechanical and digital safety features.

### Jacket

The jacket is constructed from 304L stainless steel material. 316L and 316Ti are also available.

### Piping

The pipes and fittings are constructed from stainless steel and brass. The pneumatically operated valves significantly reduce maintenance and downtime.

316L grade stainless steel piping, fittings, and components are available for clean steam applications. High quality steam can be used for tissue culture work, sterile water preparation and other special processes.

### Mounting

The sterilizer can be supplied in one of the following mounting alternatives:

- Recessed in One or Two Walls
- Free-Standing with a Stainless Steel Cabinet Enclosure

### Panels

All Tuttnauer sterilizers are provided with #4 finish, 304L stainless steel fascia panels. Special panel designs can be constructed according to the customer's requirements.

### Sizes

All standard sterilizer dimensions have been chosen to ensure maximum space utilization. All sterilizers are designed to accommodate most standard sterilization containers and carts.

### Door Configurations

Each model can be manufactured in either single or double door configurations. Fully automatic vertical/horizontal sliding doors and manual hinged/automatic locking doors are available.

### Steam Supply

The sterilizer uses saturated steam as the sterilization agent. The steam can be provided to the autoclave from the building's central source, an electric steam generator (stainless steel or carbon steel), or a steam-to-steam generator.

### Air Removal Method

Tuttnauer's sterilization method substantially shortens cycle times. This is achieved by evacuating air from the chamber with either a water ejector or liquid ring vacuum pump, combined with steam pressure pulsing.

### Standards

Our high quality laboratory autoclaves comply with the strictest international directives and standards.

### Equipment Warranty

Coverage includes one year on parts (except expendables) and one year on labor. The ASME pressure vessel is further warranted to the original owner against material and workmanship failure for a period of 15 years from the date of initial operation.



## Advanced Control System for Your Laboratory

Take advantage of Tuttnauer's sophisticated user-friendly control system, BacSoft, for repeatable high performance.

### Standard Features:

- 7" Multi-color touch screen panel
- Minimal or full control capabilities on the unloading side (double door autoclaves)
- Stores the last 200 cycles in built in memory
- Multiple access levels and user passwords for added security
- Diagnostic In/Out test (enables technician to check each system component separately)
- RS232, USB Ports
- Ethernet Connection
- Internal Battery Backup

### Optional Features:

- Barcode Reader
- Isothermal Cycle for low temperature disinfection
- F0 Software Control
- Remote Monitoring via R.P.C.R Software Package

\*Allen-Bradley® control systems, featuring a color touch screen interface are available upon request. We offer both 7" and 10" screen sizes with the ability to store up to 20 cycles.

## Designed to Handle Diverse Load Types

The Tuttnauer line of laboratory autoclaves can handle a variety of load types. The sterilizer is provided with a total of 14 pre-set programs (up to 20 customizable) that range in temperature from 105°C - 137°C. Standard programs are set to handle:

- Sterilization of Liquids
- Gravity Cycles
- Prevacuum Cycles
- 2 test programs: Air Removal and Vacuum Leak

All programs are fully customizable to suit the specific needs and requirements of the end user.



## Advanced Sterilization Cycles

**F<sub>0</sub> Cycle** - F<sub>0</sub> calculations begin when the slowest-to-heat load temperature sensor within the autoclave has reached a pre-determined set temperature. The cycle continues to calculate the F<sub>0</sub> function until the pre-determined setpoint is satisfied.

**Streaming Steam Cycle (105°C)** - Low temperature sanitation cycle set at 105°C. Steam is allowed to enter the chamber and the fast exhaust valve is opened to allow steam to stream over the contents of the unit.

**Disinfection/Isothermal Cycle (70°C)** - A flexible low temperature cycle enables disinfection. Temperature range settings are flexible within 70°C - 95°C range.

**Thermal Effluent Sterilization Cycle** - Tuttnauer sterilizers can be customized to meet the specific requirements of laboratories classified as BSL3/4 where harmful pathogens and viruses that leave the sterilizer prior to disposal must be fully sterilized. The thermal effluent sterilization cycle will sterilize chamber air and wastewater prior to their release into the drain.

## Printer

For a clear and concise documentation of the sterilization process, the control unit is provided with a built-in printer. This provides real-time cycle data including the pressure, temperature, change of phase, alarms and a summary at the end of the cycle.

## Validation Packages

Tuttnauer provides our customers with services to help expedite the validation and commissioning of your equipment, including:

- Factory Acceptance Testing (FAT)
- Site Acceptance Testing (SAT)



## R.PC.R Software

Automatic Recording of Cycle Information to Your PC

### Reporting You Can Rely On

- Automatic recording of cycle information to any PC on your network
- Convenient access to graphs and tables that are easy to understand
- Easily generate PDF reports
- No need to file printouts, saving you time

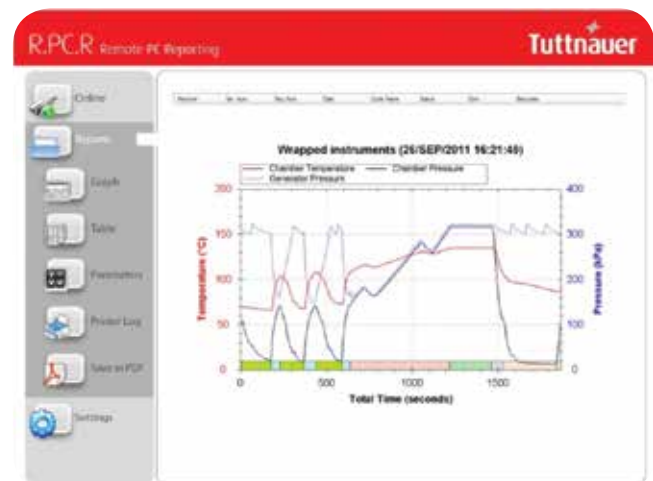
### Be in Control with Real-Time Remote Monitoring

- See the real-time autoclave display on your PC
- Monitor all activity for up to 8 autoclaves

With R.PC.R you can see: Graphs of the cycle data, Numeric cycle data, cycle print-outs, measured values table, parameter table.

Note:

- R.PC.R monitoring feature is not available with Allen Bradley controller



# A Flexible Range of Sizes and Models

Tuttnauer offers an unmatched range of models that are available in three series: Compact, Mid Range and Large Capacity. The sterilizer chambers range in volume from 120 to 1015 liters. Additionally, we design custom sizes and offer the end-user an unlimited amount of upgrades to choose from. Each model is available in either single or double door configurations.

## The 44 and 55 Compact Series

**Tuttnauer Small Laboratory Autoclaves with chamber volumes from 120 to 250 liters.**

The 44 and 55 series is available with the following door options:

- Fully automatic vertical sliding door
- Manual Hinged Door

Tuttnauer offers 2 models:

Model	Chamber Dimensions (Inches)	Chamber Volume Cubic Feet (Liter)
4472	16x16x28	4 (120)
5596	20x20x38	9 (250)



Manual Hinged Door

Vertical Sliding Door



## The 66 Mid Range Series

Tuttnauer Medium Laboratory Autoclaves with chamber volumes from 340 to 660 liters.

The 66 series is available with the following door options:

- Fully automatic vertical sliding door
- Hinged door with automatic locking

Tuttnauer offers 5 different models:

Model	Chamber Dimensions (Inches)	Chamber Volume Cubic Feet (Liter)
66A	24x24x36	12 (340)
66B	24x24x48	16 (450)
66C	26x26x39	15 (430)
66D	26x26x49	19 (540)
66E	26x26x60	23 (660)



Automatic Hinged Door

Vertical Sliding Door

## The 69 Large Capacity Series

Tuttnauer Large Laboratory Autoclaves with chamber volumes from 510 to 1015 liters.

The 69 series is available with the following door options:

- Fully automatic horizontal sliding door
- Hinged door with automatic locking

Tuttnauer offers 7 models:

Model	Chamber Dimensions (Inches)	Chamber Volume Cubic Feet (Liter)
69A	24x36x36	18 (510)
69B	24x36x48	24 (680)
69C	24x36x60	30 (840)
69D	24x36x72	36 (1015)
69E	26x37.5x36	20 (575)
69F	26x37.5x48	27 (760)
69G	26x37.5x60	34 (950)



Automatic Hinged Door



Horizontal Sliding Door



## Additional Options

### Loading Equipment

All Tuttnauer loading equipment is manufactured from high quality stainless steel material. All models can be provided with:

- Loading Cart & Transfer Carriage
- Rack & Shelves

The 69 Large Capacity Series can be configured with a Drop Wheel Loading Cart, eliminating the need for a Transfer Carriage.

### Steam Generator

If your facility does not have an in-house steam source, Tuttnauer offers steam generators in various sizes and steam capacities. Heavy-duty 316L Stainless Steel and Carbon Steel generators are available.

Loading Cart & Transfer Carriage



Rack & Shelves



### Room Isolation Seals

To provide separation of dissimilar environments, the sterilizer can be fitted with the proper room isolation seal appropriately designed for the individual application.

- **Bio-Seal**  
Manufactured using a gasket material designed to prevent airborne contaminants from entering the clean areas of the facility.
- **Vermin Seal**  
Manufactured using aluminum or stainless steel designed to prevent rodents from passing between areas.

### Air Compressor

If pressurized air is not available, Tuttnauer offers a small and quiet compressor. The compressor is used to operate the unit's pneumatic valves and/or power door.

### Water Conservation Systems

Utilizing tap or chilled water supplies. Savings can be up to 90% when compared to standard installations.

### Effluent Decontamination Systems

Tuttnauer's unique effluent sterilization (TESS) utilizes steam in lieu of filters to provide a continuous, zero maintenance effluent decontamination system. We also offer an alternative system based on HEPA filtration. While very effective, this option does require regular filter replacement.

### Other options that can be provided, include:

- RTD Load Probes with  $F_0$  Function
- Foot Pedal Door Operation
- Seismic Restraints
- Automatic Utility Startup/Shutdown

## Specifications

### Compact & 66 Mid Range Series

Model		4472	5596	66A	66B	66C	66D	66E
Chamber Dimensions WxHxL (Inches)		16x16x28	20x20x38	24x24x36	24x24x48	26x26x39	26x26x49	26x26x60
Chamber Volume Cubic Feet (Liter)		4 (120)	9 (250)	12 (340)	16 (450)	15 (430)	19 (540)	23 (660)
External Dimensions Cabinet Enclosed WxHxL (Inches)	Single Hinged Door	28x75x51	28x75x60	43x75x56	43x75x68	46x75x61	46x75x71	46x75x81
	Single Sliding Door	31x75x46	33x75x53	40x75x60	40x75x72	40x78x57	40x78x67	40x78x77
	Double Hinged Door	45x75x49	49x75x60	58x75x52	58x75x64	60x75x56	60x75x66	60x75x77
	Double Sliding Door	47x75x46	53x75x49	60x75x59	60x75x71	64x78x59	64x78x69	64x78x79
Autoclave Weight Empty Chamber Lbs (Kg)	Single Door	1100 (499)	1760 (798)	2955 (1340)	3200 (1451)	3150 (1429)	3350 (1520)	3550 (1610)
	Double Door	1250 (567)	1910 (866)	3205 (1454)	3450 (1565)	3400 (1542)	3600 (1633)	3800 (1724)

### Utility Consumptions/Requirements

Model		4472	5596	66A	66B	66C	66D	66E
Plant Steam Supply 50-80 PSIG Dynamic 97-100% Dry Saturated Vapor Condensate Free	Pipe Size	3/4" NPT	3/4" NPT	1" NPT	1" NPT	1" NPT	1" NPT	1" NPT
	Flow Rate	48 Lbs/Hr Peak 17 Lbs/Cycle Avg.	100 Lbs/Hr Peak 22 Lbs/Cycle Avg.	160 Lbs/Hr Peak 26 Lbs/Cycle Avg.	203 Lbs/Hr Peak 29 Lbs/Cycle Avg.	160 Lbs/Hr Peak 26 Lbs/Cycle Avg.	203 Lbs/Hr Peak 29 Lbs/Cycle Avg.	246 Lbs/Hr Peak 32 Lbs/Cycle Avg.
Cold Water Supply 30-70 PSIG Dynamic, 60-70° F Contact Tuttnauer for recommended Water Quality	Pipe Size	3/4" NPT	3/4" NPT	1" NPT	1" NPT	1" NPT	1" NPT	1" NPT
	Flow Rate (Peak)	4 GPM (15L)	8 GPM (30L)	12.5 GPM (47L)	14 GPM (53L)	13.5 GPM (51L)	15 GPM (57L)	19 GPM (72L)
Building Drain	Pipe Size	2" ODT	2" ODT	2" ODT	2" ODT	2" ODT	2" ODT	2" ODT
Compressed Air Requirements	75-95 PSIG Dynamic, 3.5 SCFM. 3/8" NPT							
Electrical Requirements (Control System)	1-Phase, 120v, 50/60Hz. 20A							
Electrical Requirements (Optional Vacuum Pump)		208V 3.1A	208V 3.1A	208V 7.6A	208V 7.6A	208V 7.6A	208V 7.6A	208V 7.6A
		120V 5.9A	120V 5.9A	480V 4.3A	480V 4.3A	480V 4.3A	480V 4.3A	480V 4.3A
Electrical Requirements (Optional Steam Generator)	Contact a Tuttnauer representative for specific electrical requirements.							

\* Dimensions and weights are approximate and for reference only.

\* The addition of certain options could impact the above stated utilities.

\* Contact a Tuttnauer representative to obtain certified drawings.

\* Due to continuing equipment development, specifications are subject to change without notice.

## Specifications

### 69 Large Capacity Series

Model		69A	69B	69C	69D	69E	69F	69G
Chamber Dimensions WxHxL (Inches)		24x36x36	24x36x48	24x36x60	24x36x72	26x37.5x36	26x37.5x48	26x37.5x60
Chamber Volume Cubic Feet (Liter)		18 (510)	24 (680)	30 (840)	36 (1015)	20 (575)	27 (760)	34 (950)
External Dimensions Cabinet Enclosed WxHxL (Inches)	Single Hinged Door	53x75x56	53x75x68	53x75x80	53x75x92	55x75x56	55x75x68	55x75x80
	Single Sliding Door	75x75x62	75x75x74	75x75x86	75x75x98	79x75x62	79x75x74	79x75x86
	Double Hinged Door	58x75x52	58x75x64	58x75x75	58x75x87	60x75x52	60x75x64	60x75x76
	Double Sliding Door	75x75x63	75x75x75	75x75x86	75x75x98	79x75x63	79x75x75	79x75x87
Autoclave Weight Empty Chamber Lbs (Kg)	Single Door	3440 (1560)	3770 (1710)	4100 (1860)	4500 (2041)	3640 (1651)	3970 (1801)	4300 (1950)
	Double Door	3740 (1696)	4070 (1846)	4400 (1996)	4800 (2177)	3940 (1787)	4270 (1937)	4600 (2087)

### Utility Consumptions/Requirements

Model		69A	69B	69C	69D	69E	69F	69G
Plant Steam Supply 50-80 PSIG Dynamic 97-100% Dry Saturated Vapor Condensate Free	Pipe Size	1 1/4" NPT	1 1/4" NPT	1 1/4" NPT	1 1/4" NPT	1 1/4" NPT	1 1/4" NPT	1 1/4" NPT
	Flow Rate	235 Lbs/Hr Peak 30 Lbs/Cycle Avg.	300 Lbs/Hr Peak 32 Lbs/Cycle Avg.	370 Lbs/Hr Peak 34 Lbs/Cycle Avg.	435 Lbs/Hr Peak 36 Lbs/Cycle Avg.	245 Lbs/Hr Peak 31 Lbs/Cycle Avg.	310 Lbs/Hr Peak 33 Lbs/Cycle Avg.	380 Lbs/Hr Peak 35 Lbs/Cycle Avg.
Cold Water Supply 30-70 PSIG Dynamic, 60-70° F Contact Tuttnauer for recommended Water Quality	Pipe Size	1 1/4" NPT	1 1/4" NPT	1 1/4" NPT	1 1/4" NPT	1 1/4" NPT	1 1/4" NPT	1 1/4" NPT
	Flow Rate (Peak)	18 GPM (68L)	20 GPM (76L)	22 GPM (83L)	24 GPM (91L)	18 GPM (68L)	20 GPM (76L)	22 GPM (83L)
Building Drain	Pipe Size	3" ODT	3" ODT	3" ODT	3" ODT	3" ODT	3" ODT	3" ODT
Compressed Air Requirements	75-95 PSIG Dynamic, 3.5 SCFM. 3/8" NPT							
Electrical Requirements (Control System)	1-Phase, 120V, 50/60Hz. 20A							
Electrical Requirements (Optional Vacuum Pump)		208V 18A	208V 18A	208V 18A	208V 18A	208V 18A	208V 18A	208V 18A
		480V 9.5A	480V 9.5A	480V 9.5A	480V 9.5A	480V 9.5A	480V 9.5A	480V 9.5A
Electrical Requirements (Optional Steam Generator)	Contact a Tuttnauer representative for specific electrical requirements.							

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# Your Sterilization & Infection Control Partners



## Company Profile

For over 80 years, Tuttnauer's sterilization and infection control products have been trusted by hospitals, universities, research institutes, clinics and laboratories throughout the world. Supplying a range of top-quality products to over 100 countries, Tuttnauer has earned global recognition as a leader in sterilization and infection control.

## Global Partnerships

At Tuttnauer we feel that business means people dealing with people. We pride ourselves on our reputation for the long-lasting relationships we have with our customers, spanning over decades and distances and built on commitment and trust.

## Our Flexibility Is Your Advantage

Beyond our unmatched range of products, we also manage complete turnkey solutions, including planning, design and installation of equipment, as well as consultation and feasibility studies, for projects of all sizes.

## More from Tuttnauer:

Featuring Tuttnauer's range of cleaning, disinfection and sterilization solutions



Large Capacity Sterilizers  
for Medical Use



Bulk Sized Sterilizers for  
Laboratories



Fully Automatic Table-Top  
Autoclaves



Manual Table-Top Autoclaves

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