



## Large Steam Autoclaves for the Life Sciences

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Sterilization in a laboratory environment has its unique requirements. Tuttnauer laboratory autoclave sterilizers are designed to provide high quality repeatable performance and accountability for a wide range of lab applications, including: liquids, glassware, instruments, porous loads and other laboratory items.

Choosing the right steam autoclave depends on several considerations: the type of loads, frequency of use, available services and load volumes. The Tuttnauer line of large capacity autoclaves successfully meets the challenges posed by sterilization in laboratories and research institutes. The autoclaves use pre-vacuum and gravity for air removal and improved steam penetration. The autoclaves cover a wide range of applications for laboratories in research institutes, universities, pharmaceutical and biotechnological industries.



## Designed to Handle Diverse Load Types

The laboratory autoclaves are provided with 10 preset cycle programs and 20 customizable cycle programs that range in temperature from 105°C- 138°C. Isothermal cycles are optional.

Standard programs are set for:

- Sterilization of Liquids
- Unwrapped instruments and glassware
- Wrapped instruments, packs and utensils

## Improved Air Removal

### Vacuum Cycles

The autoclave's vacuum pump efficiently removes residual air prior to sterilization, enabling effective penetration of steam.

The post-vacuum drying phase, at the end of the sterilization cycle, ensures complete drying of porous loads and hollow instruments. This guarantees that even the most difficult loads will easily reach sterility assurance levels.

## Advanced Sterilization Cycles

**F<sub>0</sub> Cycle** – An additional challenge with liquid sterilization is the need to prevent extended exposure of liquid media to high temperatures which may harm the quality of the liquid media. The advanced F<sub>0</sub> optional feature assists in minimizing the time liquids are exposed to high temperatures during sterilization thereby protecting liquid media, saving your laboratory time and reducing energy consumption.

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

## Fast Cooling

Tuttnauer's accelerated cooling technology increases the amount of cycles per day and protects the load by minimizing its exposure to high temperatures. Rapid cooling safely reduces cooling time by as much as 75% without compromising the load. After sterilization is completed, air is passed through a microbiological filter. Chamber temperature is decreased while pressure reduces and steam and condensate are drained.

The jacket is filled with purified cold water to help cool down the chamber to a safe temperature. When the liquid's temperature reaches the final set temperature, the cooling stage is complete.

## Advanced Options

Advanced options allow for sanitary conditions to be maintained, and satisfy stringent requirements for the biotechnology and food processing industries.

Separate Jacket and Chamber Connections enable reaching sterilization temperatures faster and improve temperature control. Often used for sterilizing liquids and vital when working with clean steam.

## Advanced Control System

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

### Standard Features

- 7" Multi-color touch screen panel
- Keypad control panel on second door of two door autoclaves with Bacsoft controller
- Stores the last 200 cycles in built-in memory (Bacsoft)
- Multiple access levels and user passwords to control access/operation of the autoclave
- Diagnostic In/Out test (enable technician to check each system component separately)
- Sterilization Temperature range 105°C to 137°C
- PID (Proportional Integral Differential) pressure control
- Two PT100 sensors according to EN 61010-1, EN 61010-2-040

### Optional Features

- 10" Multi-color touch screen
- Up to 8 different barcode readers
- Fo software control
- 21 CFR part 11

## 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

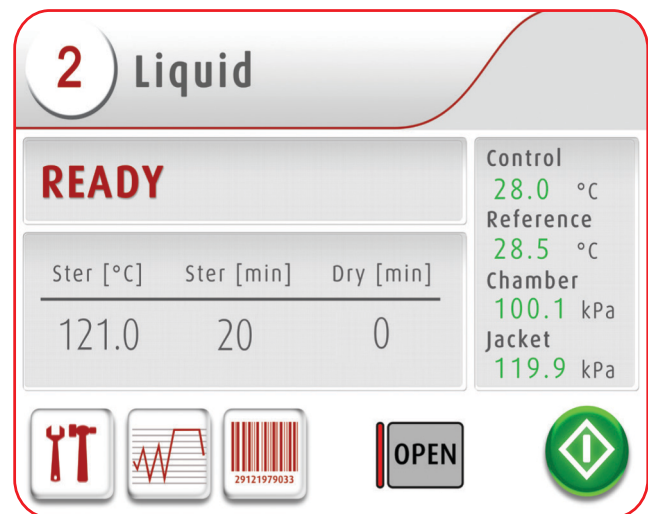
- See the real-time autoclave display on your PC
- Monitor all activity for up to 8 autoclaves

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

## Sophisticated Touch Screen HMI

The HMI (Human Machine Interface) has been designed with the following considerations:

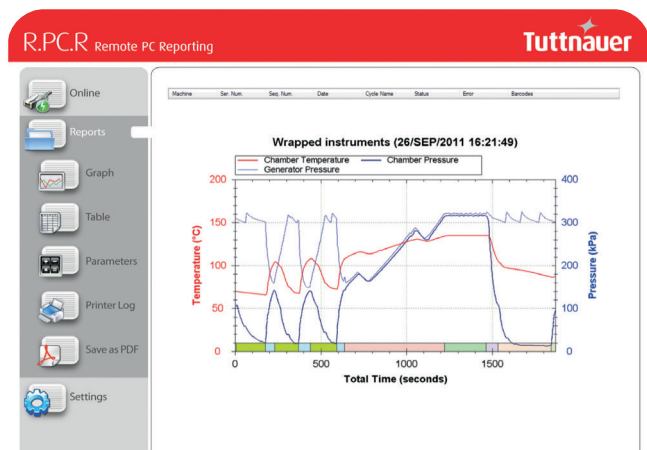
- Multi-color display for easier reading from a distance
- Multilingual (26 languages)
- Graphical display of Temperature and Pressure trend graphs



## Documentation Package

An optional full documentation package is available:

- Installation Qualification (IQ)
- Operation Qualification (OQ)
- Performance Qualification (PQ)



# Biosafety and Waste Treatment Facilities

Tuttnauer supplies sterilization solutions for the treatment of bio-hazardous materials and waste. The bio-hazardous waste sterilization cycle will efficiently process any load without risk to the environment.

These autoclaves are supplied with a thermal effluent decontamination stage that sterilizes chamber air and waste water prior to their release into the atmosphere and drain. An additional sterilization system is incorporated into the autoclave which prevents bio-hazardous aerosol generation. During the air removal phase, the exhaust, aerosol and condensation pass through a secondary sterilization treatment that sterilizes the effluent. During the heating and sterilization phases all effluent is not allowed to exit the chamber until the sterilization phase is fully complete.

## Safety

### Safety is Our Top Priority

Safety of personnel is an important issue. Tuttnauer autoclaves include numerous safety features/systems to ensure a safe work environment.

### Door Safety

The laboratory autoclaves are designed with a number of independent mechanical and digital safety features:

- In case of failure the clean door remains closed in order to protect the clean area from contamination
- A safety device prevents the operator from opening the door when the chamber is pressurized
- Steam will not enter the chamber when the door is open
- A cycle cannot start if the door is open or not properly locked
- The door cannot unlock until liquid temperature reaches the predetermined end temperature
- The door cannot unlock until chamber pressure reaches room pressure
- An air inflated door gasket creates a hermetic seal between the door and chamber
- Sliding Door Safety - sliding door progress will automatically stop if an obstruction is detected
- Double Door Safety - interlocks prevent both doors from being opened simultaneously

### General Safety Features

- Double Independent Monitoring: The combined electronic and mechanical monitoring ensures that the operator has two independent means to monitor pressure
- Safety Valves: If the pressure exceeds the allowed limit the safety valves will discharge
- Built-in Steam Generator Safety: A water level monitoring system maintains a constant water level and ensures safe operation of the heaters
- Emergency shut-off: Easily accessible emergency switches for immediate cycle shut-off



## A Flexible Range of Sizes and Models

Tuttnauer offers various models, classified as Compact, Mid-Range and Large Capacity models. The chamber sizes range from 120 to 1010 Liters.

### 44 and 55 Compact Series

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

Model 4472 is available with one vertical sliding door. Model 5596 is available with 1 or 2 vertical sliding doors

Model	Chamber Dimensions (WxHxD) mm	Chamber Volume (Liter)
4472	408 x 408 x 730	120
5596	508 x 508 x 970	250



Vertical Sliding Door



## 66 Mid Range Series

Tuttnauer Medium Laboratory Autoclaves with chamber volumes from 450 to 610 liters.

The 66 series is available with the following door options:

- 6671130-2V (two vertical sliding doors)
- 66120-1V or 66120-2V (one or two vertical sliding doors)

Model	Chamber Dimensions (WxHxD) mm	Chamber Volume (Liter)
66120	610 x 610 x 1215	450
6671130	660 x 710 x 1295	610



Vertical Sliding Door

## 69 Large Capacity Model

Tuttnauer Large Laboratory Autoclave with a chamber volume of 1010 liters.

The available model is 69180-2A (equipped with two automatic hinged doors)

Model	Chamber Dimensions (WxHxD) mm	Chamber Volume (Liter)
69180	610 x 910 x 1815	1010



Automatic Hinged Door

## Loading Equipment

Our loading equipment assists the loading and unloading process. It is made of high quality, durable stainless steel. We offer three options:

- Pull Out Trays. Stainless steel trays equipped with rails for easy loading and unloading. The rails are designed to prevent the trays from rolling over.
- Loading Carts and Transfer Carriages. The adjustable loading cart rolls from the transfer carriage onto the interior chamber tracks for easy handling of heavy loads. The trolley is equipped with revolving wheels, maximizing mobility in limited space. The wheel brakes prevent the trolley from rolling and the carriage is equipped with a lock that prevents it from sliding.



## Standards

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

### Directives/regulations and standard

ISO 9001:2015 "Quality Management Systems – Requirements"

Pressure Vessel- ASME Code section I and section VIII. Div.I

Pressure Vessel- PED 2014/68/EU

Pressure Vessel- Chinese Regulations- Special Equipment Licensing Office

IEC 61010-1: - Safety requirements for electrical equipment for measurement, control, and laboratory use - Part 1: General requirements.

EN IEC 61010-2-040: - Safety requirements for electrical equipment for measurement, control, and laboratory use - Part 2-040: Particular requirements for sterilizers and washer-disinfectors used to treat medical materials.

EN 61326-1: EMC requirements for electrical equipment

2014/35/EU Low Voltage Directive

2011/65/EU RoHS Directive



ASME



## Your Sterilization & Infection Control Partners

### Company Profile

For a century 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 140 countries, Tuttnauer has earned global recognition as a leader in sterilization and infection control.

### More from Tuttnauer

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



Tiva laboratory glassware washer



Vertical autoclaves for liquid, glassware, and biohazardous waste



Benchtop autoclaves for life science applications



## Laboratory Line

International Sales and Marketing  
Contact us at <https://tuttnauer.com/contact>  
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