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**Tuttnauer**
Your Sterilization & Infection Control Partners



Laboratory Line

Bench-Top Life Science Autoclaves

The Advanced Laboratory Line

The Full Spectrum of Laboratory Sterilizers

Sterilization in a laboratory environment has its unique requirements. Choosing the right steam sterilizer depends on several considerations: load diversity, frequency of use, available services and load volumes. The Tuttnauer line of vertical and bench top sterilizers for the life sciences successfully meets the challenges posed today in laboratories and research institutes. They cover a wide range of applications for laboratories in research institutes, universities, pharmaceutical, food, medical and biotechnological industries.

The advanced laboratory autoclave line features top loading and table top sterilizers from Tuttnauer with fast cooling, optional drying and waste treatment options. The advanced laboratory line provides a single solution for the full spectrum of sterilization needs including liquids, culture media, instruments, glassware, plastics, pipette tips, biological waste, contaminated media and other laboratory items. The autoclave is designed to accommodate for a wide range of applications. The user can choose to add the features needed according to the sterilizer's intended use. The advanced laboratory autoclave line is available in an unmatched range of table top and floor standing models with chamber volumes of 23 to 160 liters.



Advanced Options for Liquid Loads

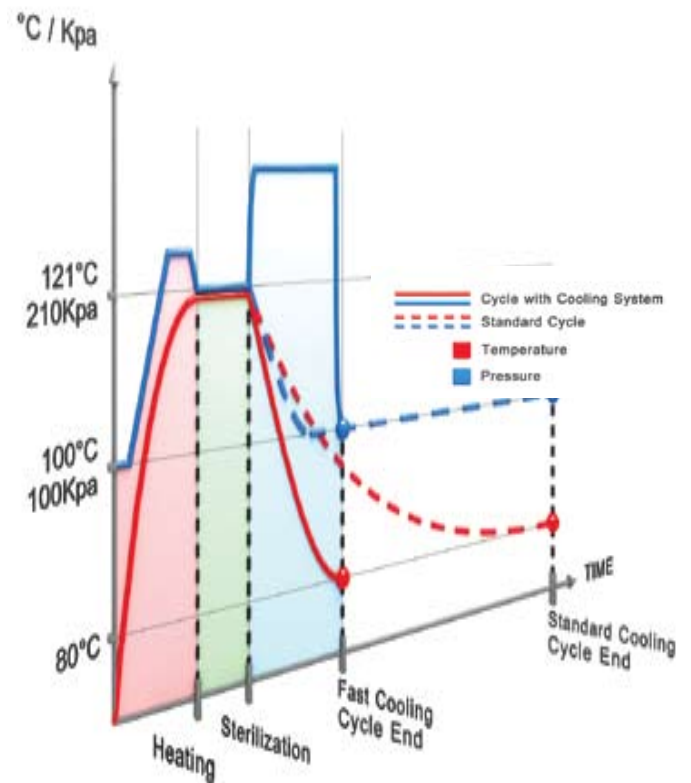
More time is required for liquids to reach sterilization temperature compared to non-liquids. Tuttnauer's advanced laboratory autoclave line is equipped with a **flexible temperature load sensor**, which is placed in a reference vessel, ensuring that the set sterilization temperature is actually attained when sterilization begins. Sterilization is initiated only when the load sensor reaches the preset required temperature.

After sterilization is attained, the autoclave door cannot be opened immediately, but only after the liquid has properly cooled down. Tuttnauer's cooling method prevents a sudden drop in chamber pressure which can cause liquids to boil over.

An additional challenge is the need to prevent media exposure to high temperatures for a long time, for the concern that it might harm the quality of the media. Tuttnauer offers advanced options that minimize the time liquids are exposed to high temperatures.

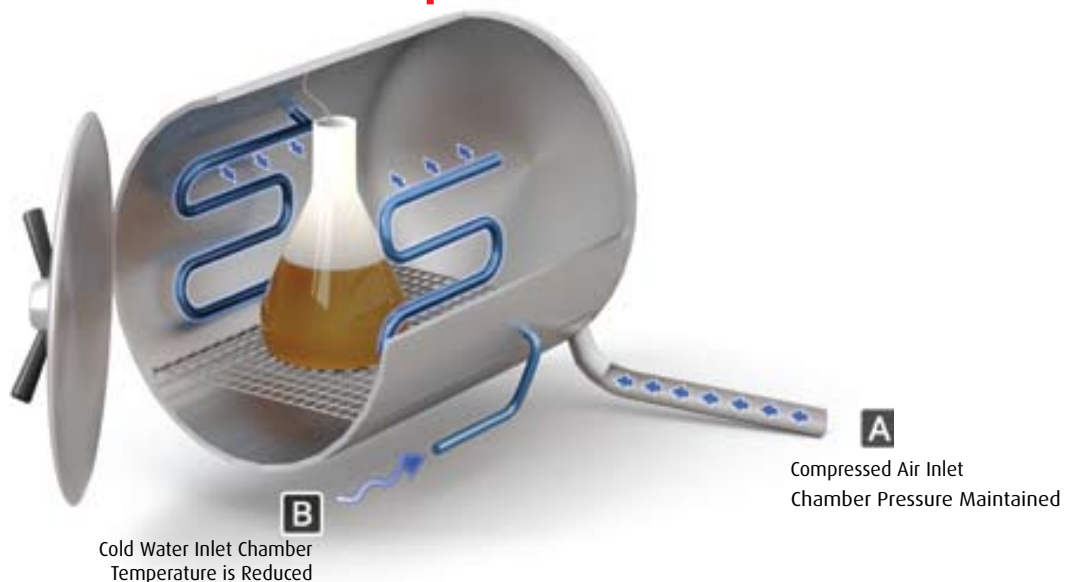
Reduced Cycle Times with Optional Fast Cooling

Tuttnauer's accelerated cooling technology reduces cycle time and protects the load by minimizing its exposure to high temperatures. Rapid cooling typically reduces cooling time by as much as 75%. After sterilization is completed, compressed air is passed through a microbiological filter to maintain chamber pressure. In this way pressure drop is prevented. The maintaining the pressure prevents load deformation, cracks or spills.



Fast Cooling Option

Bench-Top Models



Fan Assisted Cooling

An additional feature that further enhances the cooling stage is the optional radial ventilator. The fan circulates the hot air, inside the chamber, transferring the heat to the cooled chamber walls or cooling coils. The overall chamber and load temperature rapidly drops.



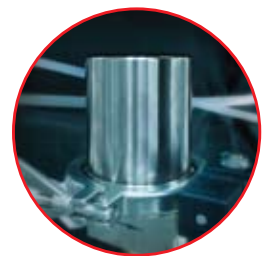
Efficient Air Removal by Optional Vacuum System

The vacuum pump is optional and if not selected the gravity displacement air removal method is used. Fractioned pre-vacuum air removal eliminates air pockets from all load types and maximizes steam penetration. A pre-vacuum pump removes the air from the chamber. This allows for complete air removal with more efficient steam penetration throughout the entire load.



Optional Bio-hazardous Waste Sterilization

The Tuttnauer line of advanced laboratory sterilizers supplies a full sterilization solution for the treatment of bio-hazardous waste. The sterilizers can be supplied with an optional exhaust filtration system. During the air removal stage, prior to sterilization, all effluent is passed through a biological filter that provides an extra level of protection. During the sterilization phase, condensate does not leave the autoclave chamber. It is removed only after the sterilization phase is complete. The laboratory staff and environment are therefore protected from contamination.





Improved Drying by Vacuum

The post-vacuum drying phase, at the end of the sterilization cycle, ensures improved drying of porous loads and hollow instruments such as pipette tips. The low pressure in the autoclave chamber caused by the vacuum reduces the boiling temperature therefore causing the moisture to evaporate faster. The hot vapor is sucked out of the autoclave chamber by vacuum and the materials dry. Following the vacuum stage, dry air is introduced into the chamber through an air filter.

Control and Documentation

The laboratory line features a user friendly, microprocessor control system which offers enhanced monitoring and control. The programs are designed to treat all load types including liquids, instruments and waste. All programs are fully customizable to suit the specific needs and requirements of the end user.

Features:

- High precision control system for perfect sterilization results
- Password protection allows for secure access control
- Independent temperature and pressure monitoring
- Cycle information recovery in the case of power failure or cycle interruption
- Fail Alert – Indicates cycle failure or interruption
- Door Alert – Indicates the door is unlocked
- RS 232 PC Connection Port for direct software updates and remote maintenance



Built in Printer

The laboratory line can be supplied with a built-in printer to document the performed cycle, in addition to a comprehensive LCD display. This feature is optional.



ADMC Software

The ADCM software allows complete control and monitoring of up to eight sterilizers. The software retrieves data, creates graphs, tables and print outs, controls the autoclave and shows real-time data.

Documentation Package

A full documentation package is available on demand:

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



Safety Is Our Top Priority

Our Safety features ensure functionality and a worry-free work environment which results in reduced downtime.

Door Safety

The autoclave lids are designed with a number of independent mechanical and digital safety features.

- A safety device prevents the operator from opening the door when chamber is pressurized
- Steam is not allowed to 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 temp.
- The door cannot unlock until chamber pressure reaches room pressure
- **Temperature Activated Door Lock** - The door will not open until the temperature is below a specified safe level.



General Safety Features:

- **Double Independent Monitoring:** The combined electronic and mechanical monitoring guarantees accurate results. The operator has two independent means to monitor temperature and pressure.
- **Safety Valves:** The chamber is equipped with 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

Engineered with People in Mind

Our quality features enable the convenience and durability needed to operate an autoclave with complete peace of mind.

Quality Features:

- The chamber is constructed of long lasting 316Ti grade stainless steel with superior corrosion resistance.
- The generator is made from stainless steel.
- The autoclave automatically switches to standby mode if no buttons or switches are operated for four hours
- The autoclave is designed for easy servicing allowing maintenance access to all components
- Drain Protection: The exhaust drain is mixed with cold tap water that cools the exhaust's temperature before reaching the drain.



Tuttnauer's high quality laboratory autoclaves comply with the strictest international directives and standards.

Pressure Equipment: PED 97/23 EEC, EN 10028-7, ASME Code Sec VIII

Safety: IEC/UL/EN61010-1, IEC 61010-2-040, EN 61326

Sterilization: DIN 58951 Series, ISO 17665-1:2006

Quality System: ISO 9001:2000, ISO 13485:2003





Bench Top Autoclaves

The Tuttnauer bench-top, front loading laboratory autoclave is available in chamber sizes of 23 to 160 liters. EL models have an advanced microprocessor control panel. ML models have a semi-automatic control panel.

Bench top models - Technical Data

Model	Chamber Dimensions ØxDepth	Chamber Volume (Liter)	External Dimensions WxHxD (mm)
2540 EL	250 x 400	23	510x365x545
3870 EL	380 x 690	85	660x525x875
5075 EL	500 x 750	160	880x700x967



Erlenmeyer Flasks (ml) Loading Capacity :

Model	250 ml	500	1000	2000	3000	5000
2540	10	8	3	-	-	-
3870	30	20	12	6	4	-
5075	2 x 42	2 x 24	12	9	8	5



Schott-Duran Flasks (ml) Loading Capacity:

Model	250 ml	500	1000	2000	3000	5000
2540	14	10	4	-	-	-
3870	37	28	18	10	4	-
5075	2 x 54	2 x 40	26	14	8	3

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



Washer disinfectors for
hospitals and laboratories



Pre & post vacuum tabletop
sterilizers designed to perform
class B cycles

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