



Company Profile

For more than 75 years, the Tuttnauer Company has been designing and manufacturing a wide range of sterilization equipment for the medical, dental, pharmaceutical, bio-technology, and surgical markets. Drawing on this extensive experience, as well as input from it's international network of sales and marketing offices, Tuttnauer is in the unique position of being able to incorporate the best design and engineering features of the international sterilization community into their standard, commercially available, infection control products.

After Sales service

Tuttnauer after sales service provides various services worldwide such as a technical training center for technicians in the USA and Holland, a network of trained technicians and service consultants, who provide immediate technical support within 24 hours by fax, e-mail or phone, spare parts supply and a complete workshop facility in Holland and the USA capable of providing maintenance, repair and backup services.



Sterilization & Infection Control Products

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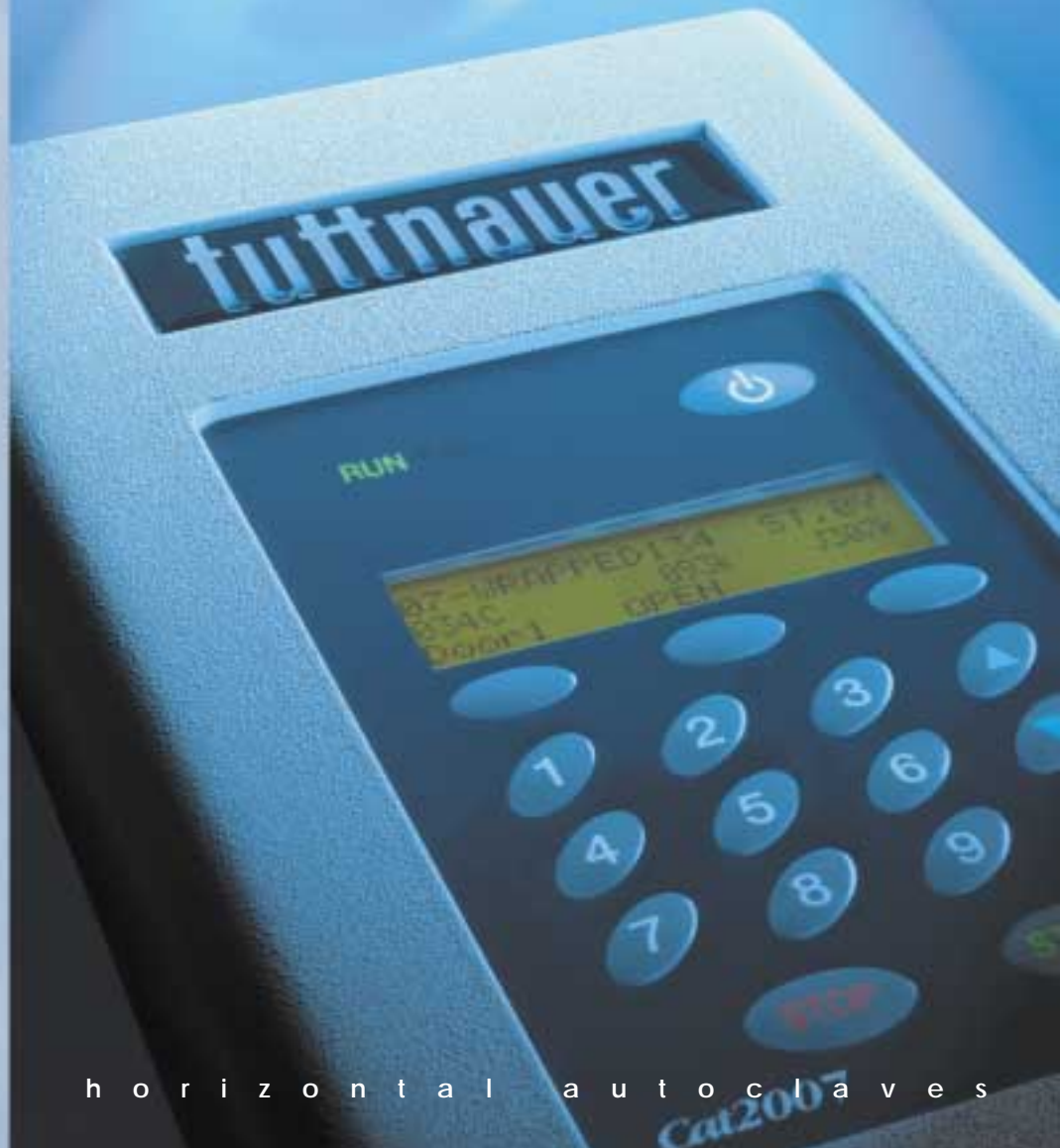
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tuttnauer

Sterilization & Infection Control Products



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LTR230-0031

h o r i z o n t a l a u t o c l a v e s

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Introduction

The ever-growing demand for more advanced Scientific, Industrial and Hospital equipment has led to the development of the Tuttnauer line sterilizers. With higher capacity and better performance, Tuttnauer's line of steam sterilizers provides, safe, economical and effective sterilization.

For more than 75 years, the Tuttnauer Company has been designing and manufacturing a wide range of sterilization equipment for the Medical, Dental, Pharmaceutical, Bio-Technology, and industrial markets.

Application:

Tuttnauer offers a full range of sterilizer models designed to cover a large field of applications in Hospitals and Laboratories, as well as the Pharmaceutical and Biotechnological industries. Tuttnauer products serve as standard equipment in:

- Animal Care Facilities
- Hospital Central Supply & Operating Rooms
- Research Institute Laboratories
- Medical Waste Treatment Facilities
- Pharmaceutical Manufacturing Industry
- Biotechnology and Allied Industries

Tuttnauer Sterilizers operate with saturated steam as the sterilization agent.

Tuttnauer's sterilization method substantially shortens cycle times. This is achieved by evacuating air from the chamber with either a water ejector or a vacuum pump, combined with steam pressure pulsing. A HEPA Filter of 0.2µm is provided, to filter the air, which equalizes the chamber pressure after the drying cycle.

Standards:

Tuttnauer's sterilizer models meet the provisions of the Medical Device Directive 93/42EEC as well as the Pressure Equipment Directive 97/23EEC. Sterilizers comply with EN 285, EN554 as well as AAMI/ANSI 8. The Quality System is certified in compliance with ISO 9002, EN 46002 and ISO 13488. The devices are UL Listed, FDA cleared and CE marked (MDD & PED).

tuttnauer
Sterilization & Infection Control Products



Horizontal Autoclaves



Construction:

- **Chamber & Doors** - The chamber and doors are constructed of heavy-duty 316L or 316Ti stainless steel austenitic. Both single and double door models are available as well as door types such as hinged power or manual, or sliding power doors.
- **Jacket** - Jacket is constructed of 316L or 316Ti stainless steel.
- **Piping** - The pipes and fittings are of stainless steel and brass, valves are ball type, self-cleaning and pneumatically operated (a small and quiet compressor can be supplied upon request).
- **Mounting** - The sterilizers can be supplied in one of the following mounting alternatives: Wall mounted, Free standing with Cabinet, Pit Mounted and Floor Loading.
- **Panels** - All sterilizers are provided with stainless steel panels. Special panel designs can be supplied according to customer requirements.
- **Loading** - The chamber can be supplied with two rails for easy loading of the chamber. A variety of stainless steel shelves and loading equipment is available for your selection.

- **Size** - All standard sterilizer dimensions have been chosen to ensure maximum space utilization for sterilization purposes. All sterilizers are designed to accommodate most standard sterilization containers and baskets.

Doors / Configurations:

The sterilizers can be supplied with fully automatic vertical sliding doors, horizontal sliding doors or hinge automatic locking doors, at one or both sides. H44, H55, H66 Models - Operate using automatic vertical sliding, manual hinged or automatic hinged doors.

H69 Models - Operate using automatic horizontal sliding or automatic hinged doors.

Models - Operate using automatic horizontal sliding doors, or under special circumstances, automatic hinged doors.

In the case of automatic sliding doors, the moving doors progress will be automatically stopped if any obstacle is in its way. A special safety feature on all of our sterilizers prevents the operator from opening the door when the chamber is pressurized.

Steam Supply:

The sterilizer is heated by steam. The steam can be supplied from the building's central source, an internal electric steam generator, an integral steam to steam generator, or a combination of systems. In all cases, the steam supply is automatically controlled. The optional electric steam generator is available, built-in, for Models H44, H55, H66, and as a separate unit in Models H69 and larger.

Loading:

Pull out Shelves, Floor Loading Carts and Transfer Carriages are available to assist in the loading and unloading process. The Shelves, Loading Carts and Transfer Carriages are made of stainless steel. The Transfer Carriages and Floor Loading Carts move on four heavy-duty castors mounted on its base.

can be supplemented with a stainless steel wire basket. An automatic loading and unloading system is optional for Medical Waste Applications.



The sterilizer control system is based on microcomputer technology, providing highly reliable and safe operation. The computerized control unit ensures fully automatic operation through the entire cycle. No further intervention is necessary, after parameter selection and operation start, the cycle main phases and the machine's actual parameters are displayed on the panel during the cycle progress. The main physical parameters of the process, i.e. temperature, pressure, time and jacket pressure are controlled and displayed. The keypad located on the front panel enables the operator to select a program, start and stop the cycle and allows access to main parameters by a supervisor using an access code. The control system is easy to use and supervisor programmable. Calibration of the system can be accomplished digitally from the control panel or through a computer. The code is downloaded into the flash memory.

Documentation:

The sterilizer chamber is designed and manufactured in accordance with ASME (American Society of Mechanical Engineers) standards. Tuttnauer will supply a documentation package including documents such as:

Calibration test report, CE certificate of compliance with the PED 97/23 requirements, the MDD 93/42 (if applicable) and safety valves, type test and work test declaration of compliance, user instruction and maintenance manual, service manual, a spare part list and a warranty certificate.

For a clear and concise documentation of the process, the control unit is provided with a 24 character per line printer, which is connected to the processing unit. The printer submits a hard copy printing of the relevant information concerning operating during the cycles such as temperature, pressure, vacuum, sterilization and drying time, number of cycles etc. In case of an uncompleted cycle, the documentation system submits a print out indicating cycle failure and the cause of the failure. An additional graphic printer is optional. A circular chart temperature and pressure recorder can be supplied upon request.

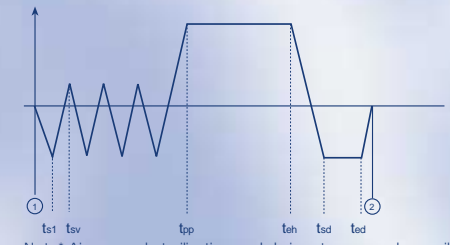
Cycles available

The sterilizer is designed to operate using various steam sterilization programs and test programs, all are selected by using the keypad. All cycles are can be chosen by the operator with key parameters programmed only by a supervisor.

Control System

Standard programs include:

- Gravity Cycle(s)
- Pre-Vacuum(s)
- Liquid(s)
- Bowie & Dick Test (Healthcare Only)
- Vacuum Leak Test

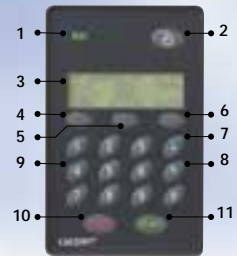


Note* Air removal, sterilization and drying stages can be easily preprogrammed.

Control & Monitoring

The sterilizer Operator Interface Panel is composed of the following:

1. The operation panel contains 2 LED's. The RUN LED indicator (Green) lights up during a process. The FAIL LED indicator (Red) lights up during system failure.
 2. POWER ON / STAND BY Keypad.
 3. The lighted LCD display consists of 4 alphanumeric rows with 20 characters in each row.
 - 4-6. These MULTI-FUNCTION keypads are located under the display. The chosen function will be displayed above the keypad. These keys can also operate calibration, setup and door status.
 - 7-8. UP/DOWN Keypads. In normal working mode they are used to browse through the different cycles. Under setup mode they will adjust numeric values.
 9. 10 Digit Keypad. this keypad is used for selecting cycle number or, under setup mode adjust numeric values.
 10. STOP / ABORT Key. stops operation at any stage of the cycle. This key is active only while the autoclave is in process. This key also confirms an alarm.
 11. START Keypad. While the autoclave is in ready position, pressing START key will activate the cycle (providing the door is closed and the water level is normal).
- The control and monitoring applications can also be performed using an optional Touch Screen assisted by the ADMC software available under options.



Options

Steam generator

In case steam is not available Tuttnauer offers the Tuttnauer™ Stainless Steel fully automatic Electric Steam Generator in various sizes and steam capacities between 16 to 75 kg/hour. All steam generators are constructed of heavy-duty stainless steel Type 316L. Each steam generator comes equipped with a water pump, which maintains and regulates the water level in the generator reservoir, it contains 2 electrodes and heaters using 12 - 60 kW.



Air compressor

In case pressurized air is not available Tuttnauer offers a small and very quiet compressor. It is an 115/230V, 50/60 Hz, 6L volume compressor with maximum working pressure of 8.5bar and a output of 105 L/min.

Cross Contamination Seal (Bio-Shield)

In case absolute separation is needed between the clean and the contaminated sides of the facility, the sterilizer can be fitted with a metal buffer welded around the jacket and connected to the room walls. This serves to create a barrier between one side and the other.

Communication

Sterilizer communication is accomplished using an integrated computer. Tuttnauer offers (ADMC) Software - Autoclave Documentation Monitoring Control software as an option for a full PC controlled communication system. ADCM software permits:

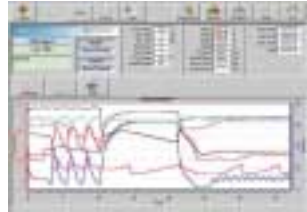
- Controlling and operating the autoclave.
- Displaying real time data, both numeric and graphic.
- Gathering all process information, saving and creating history log files that can also be opened by supporting

database software such as Access etc.

- Both digital and analog in / output status display from a remote PC.

Modem

In order to support long distance service and maintenance the autoclave can be supplied with a build-in modem. Connection is made by available software from Tuttnauer.



Documentation package

An optional full documentation package is available with the sterilizer containing: Preliminary Installation Qualification (IQ), Preliminary Operation Qualification (OQ) and Preliminary Performance Qualification (PQ).



Specifications

This table describes manually operated door models only, vertical and horizontal sliding door models also available.

Model		H44	H55	H66		H69			
		16"x16"x28"	20"x20"x38"	24"x24"x36"	24"x24"x48"	24"x36"x36"	24"x36"x48"	24"x36"x60"	24"x36"x72"
		Manual Hinged Door		Automatic Hinged Door					
Chamber dim. inches (mm)	W	16 (410)	20 (510)	24 (610)	24 (610)	24 (610)	24 (610)	24 (610)	24 (610)
	H	16 (410)	20 (510)	24 (610)	24 (610)	36 (910)	36 (910)	36 (910)	36 (910)
	D	28 (730)	38 (970)	36 (930)	48 (1230)	36 (930)	48 (1230)	60 (1530)	72 (1830)
Chamber volume CuF (Lit)	W	4 (120)	9 (250)	12 (400)	16 (510)	18 (595)	24 (760)	30 (927)	36 (1094)
	H	40 (1017)	44 (1117)	53 (1342)	53 (1342)	53 (1342)	53 (1342)	53 (1342)	53 (1342)
	D	59 (1500)	76 (1930)	92 (2340)	101 (2570)	92 (2340)	101 (2570)	112 (2830)	123 (3130)
Max External Dim. (open door) inches (mm)	W	48 (1225)	52 (1330)	62 (1570)	62 (1570)	62 (1570)	62 (1570)	62 (1570)	62 (1570)
	H	87 (2200)	87 (2200)	87 (2200)	87 (2200)	87 (2200)	87 (2200)	87 (2200)	87 (2200)
	D	63 (1600)	73 (1840)	73 (1850)	85 (2150)	73 (1850)	85 (2150)	96 (2450)	108 (2750)
Shipping Dim. inches (mm)	W	48 (1225)	52 (1330)	62 (1570)	62 (1570)	62 (1570)	62 (1570)	62 (1570)	62 (1570)
	H	87 (2200)	87 (2200)	87 (2200)	87 (2200)	87 (2200)	87 (2200)	87 (2200)	87 (2200)
	D	63 (1600)	73 (1840)	73 (1850)	85 (2150)	73 (1850)	85 (2150)	96 (2450)	108 (2750)
Shipping volume CuF (M)	W	152 (4.3)	191 (5.4)	225 (6.4)	260 (7.4)	225 (6.4)	260 (7.4)	300 (8.5)	335 (9.5)
	H	1100 (500)	1760 (800)	2955 (1340)	3200 (1450)	3440 (1560)	3770 (1710)	4100 (1860)	4500 (2040)
	D	1370 (620)	2310 (1050)	3840 (1740)	4320 (1960)	4750 (2155)	5445 (2470)	6150 (2790)	6910 (3135)
Weight Pounds lb (Kg)	W	1540 (700)	2220 (1000)	3400 (1540)	3640 (1650)	3880 (1760)	4210 (1910)	4540 (2060)	4940 (2240)
	H								
	D								

Utilities Consumptions / Requirements

Plant steam supply	3/4", 50-80 PSI 48 Lbs/Hr Peak 27 Lbs/Hr Avg.	3/4", 50-80 PSI 100 Lbs/Hr Peak 55 Lbs/Hr Avg.	1", 50-80 PSI 160 Lbs/Hr Peak 88 Lbs/Hr Avg.	1", 50-80 PSI 203 Lbs/Hr Peak 113 Lbs/Hr Avg.	1", 50-80 PSI 235 Lbs/Hr Peak 130 Lbs/Hr Avg.	1", 50-80 PSI 305 Lbs/Hr Peak 170 Lbs/Hr Avg.	1", 50-80 PSI 370 Lbs/Hr Peak 205 Lbs/Hr Avg.	1", 50-80 PSI 435 Lbs/Hr Peak 240 Lbs/Hr Avg.	
Cold water supply Maximum hardness value: 0.7+ 2.0mmol/l Recommended temperature 15°C	3/4" 30-75 PSI 4 GPM Peak 83 GPH Avg.	3/4" 30-75 PSI 8 GPM Peak 173 GPH Avg.	3/4" 50-80 PSI 12.5 GPM Peak 275 GPH Avg.	3/4" 50-80 PSI 16 GPM Peak 350 GPH Avg.	3/4" 50-80 PSI 19 GPM Peak 410 GPH Avg.	3/4" 50-80 PSI 25 GPM Peak 525 GPH Avg.	3/4" 50-80 PSI 30 GPM Peak 640 GPH Avg.	3/4" 50-80 PSI 35 GPM Peak 755 GPH Avg.	
Compressed air requirements	Pressure 90-110 PSI, 3.5 SCFM, 3/8" thread connection.								
Electrical requirements (Without Steam generator or vacuum pump)	1Ph, 110V 50/60Hz, 10A								
Optional Steam generator	Power	12kW	18kW	36kW	36kW	36kW	45kW	54kW	60kW
	Electrical requirements	3Ph, 208/220V 50A	3Ph, 208/220V 73A	3Ph, 208/220V 110A	3Ph, 208/220V 110A	3Ph, 208/220V 110A	3Ph, 208/220V 160A	3Ph, 208/220V 190A	3Ph, 208/220V 216A

SPECIAL ELECTRICAL REQUIREMENTS AVAILABLE ACCORDING TO INDIVIDUAL ORDER.

Dimensions and weight are approximate, and are for guidance only. Specifications affecting the appearance or other cosmetic aspects of the autoclave are subject to change without notice.