

tuttnauer

Sterilization & Infection Control Products



L a b o r a t o r y L i n e A u t o c l a v e s

Introduction

High performance. Attractive design. Favorable price.

Vertical and bench-top autoclaves, 7.5 to 160 Liter volume

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 research institutes, microbiological and quality control laboratories, pharmaceutical and food industries. Our autoclaves have set new standards in design and performance.

Sterilization applications:

- Liquids such as nutrient media and buffer solutions
- Solid items such as pipettes, tubes and filters
- Glassware and plastic articles
- Waste sterilization

The right system for every type of sterilization:

- **Series EL and ELV**
Fully automatic, microprocessor-controlled.
- **Series ML and MLV**
Semi-automatic, electro-mechanically controlled.

The various applications can be carried out using the autoclave's standard programs.

Additional options ensure even more with control of results and optimal, safe and repeatable sterilization processes.

For special applications, our experienced team will customize a suitable method for you. Challenge us!

Autoclaves, State-of-the-art technology



Top-quality features

EL and ELV Series Built-in technical features

- **Control System**

The sterilizer control system is based on microcomputer technology providing high reliability and safe operation.

- **Programs**

6 individual programs standard.

- **LCD Display**

Pressure, temperature, time and faults.

- **Sterilization Parameters**

Temperature and time are freely selectable; temperature can be set between 60 and 138°C. Sterilization time can be set from 1 – 99 minutes. Pre-selected parameters remain programmed until altered.

- **Sterilization Initiation**

The PT-100 temperature sensor in a reference vessel ensures that the set sterilization temperature is actually attained when sterilization starts.



New Printer



- **Demineralized water level regulation**

Feed water for steam generation is automatically regulated.

- **Exhaust steam condensation**

Exhaust steam is cooled down before leaving the autoclave. No excessive steam is exhausted.

- **Heat-resistant plastic covering on lid**

Prevents contact with hot parts and protects from burning.

- **Temperature and pressure regulation**

Both parameters are included in the control panel, and thus guarantee an absolutely safe sterilization procedure.

- **Pre-prepared for fitting a printer**

Space and electronics are available for the retrospective fitting of a printer for documentation purposes making the fitting easy and inexpensive.

- **Pre-prepared for cooling**

The autoclaves are prepared for the retrospective fitting of cooling equipment; both electronics and cooling coils can be fitted without difficulty.

- **Validation port**

Ports are available for external temperature sensors for validation and qualification purposes.

- **RS 232 interface**

Safety first- The safety aspects:

- **Pressure-dependent door lock**

Prevents the door from being opened when under pressure.

- **Temperature-dependent door lock**

In conjunction with temperature control in a reference, the system prevents the door from being opened until the temperature is below a specified level, thereby preventing delayed boiling (as specified by technical safety regulations, in compliance with European and International standards).

- **Door lock safety switch**

Prevents the sterilization program from being started if the door has not been closed properly.

- **Water level safety device**

Prevents the autoclave from being heated up if insufficient water is available for steam generation.

- **Excess temperature safety device**

Switches off the heating elements if too high a temperature is attained.

- **Overpressure valve**

Releases over pressure in order to prevent high pressure risk.

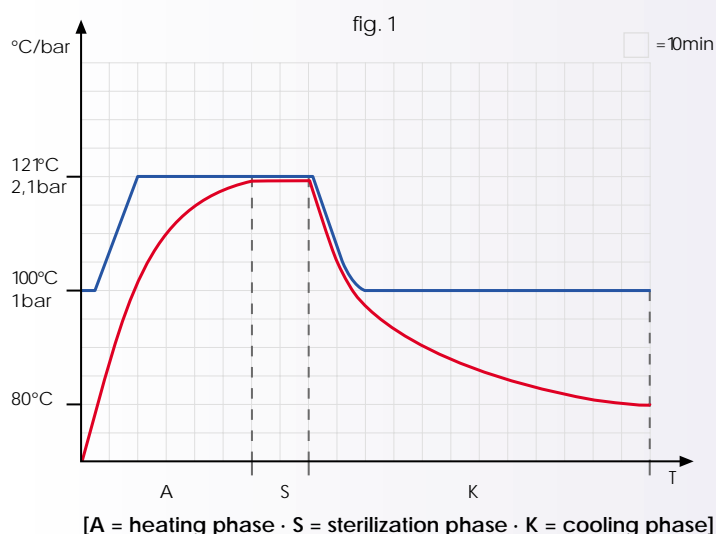


Intelligent Technology

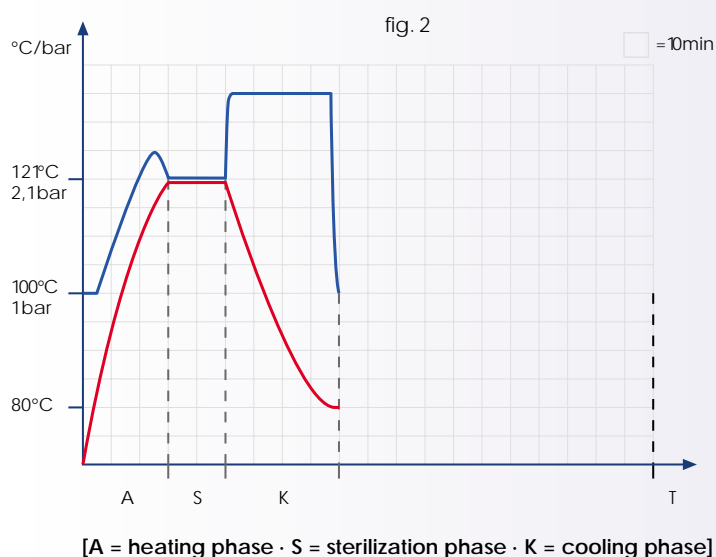
Short batch times with intelligent technology

The actual sterilization time of e.g. 15 minutes at 121°C is only a fraction of the total time involved in the sterilization process. Especially when sterilizing liquids, the heating and cooling phases are much longer (fig.1).

State-of-the-art technology makes it possible to reduce the entire batch time considerably – several hours can be saved! In addition, this also means that media need not be exposed for unduly long periods of time to high temperatures (fig.2).



In conventional autoclaves, the prescribed temperature may well be reached in the vessel but the liquids to be sterilized may only be at e.g. 100°C: the overall time required to attain equilibrium between vessel and liquid is hence much longer.



Up to 50 % less heating time – in all autoclaves!

This system is different! Due to the dual temperature and pressure control, the chamber pressure and hence temperature are increased in the heating phase. Temperature equilibrium is thus attained much more quickly and the overall sterilization time is shorter.

Up to 90 % less cooling time – optional!

The specially developed rapid cooling system – with or without support pressure – enables cooling time to be reduced by up to 90% (fig. 2). This system can also be fitted retrospectively.

* The times indicated are dependent on the size and quantity of the vessels to be sterilized.

Vertical Autoclaves



Type 5075 ELV
160 L chamber volume.



Type 2540 ELV
23 L chamber. Compact design, on rollers, can be conveniently placed in the work environment.



Type 3870 ELV
85 L chamber volume.

Series ELV

"The professional", with microprocessor control and all the features described on page 4.

Series MLV

"The economical", with electro-mechanical control.

Technical data: series ELV and MLV

Type	Chamber dimensions Ø x depth in mm	Chamber volume in liters	External dimensions (W x H x D) in mm	Heating performance in KW	Voltage in Volt 50/60 Hz
2540 ELV/MLV	250 x 400	23	496 x 643 x 368	2,2	220 - 240
3150 ELV	310 x 500	40	600 x 770 x 450	3,3	220 - 240
3170 ELV	310 x 700	55	600 x 950 x 450	3,3	220 - 240
3850 ELV/MLV	380 x 490	62	650 x 770 x 500	6,0	380 - 400
3870 ELV/MLV	380 x 690	85	650 x 950 x 500	6,0	380 - 400
5050 ELV/MLV	500 x 500	110	880 x 820 x 700	9,0	380 - 400
5075 ELV/MLV	500 x 750	160	880 x 1010 x 700	9,0	380 - 400

Loading capacity

Erlenmeyer flasks:

Type	2540 ELV	3150 ELV	3170 ELV	3850 ELV	3870 ELV	5050 ELV	5075 ELV
250 ml	2 x 5	3 x 8	4 x 8	3 x 12	4 x 12	3 x 22	5 x 22
500 ml	2 x 4	2 x 4	3 x 4	2 x 7	3 x 7	2 x 14	4 x 14
1000 ml	1	2 x 3	2 x 3	2 x 4	2 x 4	2 x 8	3 x 8
2000 ml	1	1	2 x 1	3	2 x 3	7	2 x 7
3000 ml	1	1	2 x 1	2	2 x 2	4	2 x 4
5000 ml	1	1	1	1	1	3	3

Schott-Duran flasks:

Type	2540 ELV	3150 ELV	3170 ELV	3850 ELV	3870 ELV	5050 ELV	5075 ELV
250 ml	2 x 8	3 x 12	4 x 12	3 x 18	4 x 18	3 x 30	5 x 30
500 ml	2 x 5	2 x 8	3 x 8	2 x 11	3 x 11	2 x 22	4 x 22
1000 ml	4	2 x 5	2 x 5	2 x 8	2 x 8	2 x 15	3 x 15
2000 ml	1	3	2 x 3	4	2 x 4	8	2 x 8
5000 ml	1	1	1	2	2	4	2 x 4
10000 ml	-	1	1	1	1	2	2



Type 2540 MLV
with electro-mechanical control

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Bench-top Autoclaves



Additional features of bench-top autoclaves:

Integrated reservoir for feed water, with water level control and steam recirculation. This saves demineralized water and enables the autoclave to be independent of a water supply. External heating elements. No heating elements within the chamber. Easy cleaning and drying with dry heat subsequent to sterilization of solids.

Technical data: series EL and ML

Type	Chamber dimensions Ø x depth in mm	Chamber volume in liters	External dimensions (W x H x D) in mm	Heating performance in KW	Voltage in Volt 50/60 Hz	Internal bottom-space (W x D) in mm
1730 EL/ML	170 x 300	7.5	440 x 305 x 455	1,30	220 - 240	115 x 300
2540 EL/ML	250 x 420	23	510 x 365 x 545	2,20	220 - 240	170 x 420
3150 EL	310 x 500	40	600 x 450 x 695	3,30	220 - 240	225 x 500
3850 EL/ML	380 x 510	62	660 x 525 x 695	4,00	380 - 400	295 x 510
3870 EL/ML	380 x 690	85	660 x 525 x 875	4,80	380 - 400	295 x 690
5050 EL/ML	500 x 500	110	880 x 700 x 767	4,80	380 - 400	390 x 500
5075 EL/ML	500 x 750	160	880 x 700 x 967	7,20	380 - 400	390 x 750

Loading capacity

Erlenmeyer flasks:

Type	2540 EL	3150 EL	3850 EL	3870 EL	5050 EL	5075 EL
250 ml	10	18	22	30	2 x 30	2 x 42
500 ml	8	10	15	20	2 x 15	2 x 24
1000 ml	3	7	8	12	12	18
2000 ml	-	3	5	6	7	9
3000 ml	-	-	3	4	6	8
5000 ml	-	-	-	-	3	5

Schott-Duran flasks:

Type	2540 EL	3150 EL	3850 EL	3870 EL	5050 EL	5075 EL
250 ml	14	24	28	37	2 x 36	2 x 54
500 ml	10	18	20	28	2 x 26	2 x 40
1000 ml	4	10	15	18	18	26
2000 ml	-	6	8	10	12	14
5000 ml	-	-	3	4	6	8
10000 ml	-	-	-	-	3	3



Type 2540 ML
with electro-mechanical control.

Series EL
– "The professional", with microprocessor control and all features as described on page 4.

Series ML
– "The economical", with electro-mechanical control.

Accessories

Baskets and inserts for vertical autoclaves

Type	Stainless steel wire baskets		Stainless steel mesh baskets		Stainless steel container for waste products, with vent holes		Stainless steel container for waste material, with vent holes and lid	
	Max. Ø x height in mm	Capacity	Max. Ø x height in mm	Capacity	Max. Ø x height in mm	Capacity	Max. Ø x height in mm	Capacity
2540 ELV/MLV	235 x 350	1	-	-	235 x 350	1	240 x 380	1
	235 x 190	2	-	-	-	-	-	-
3150 ELV	295 x 340	1	295 x 340	1	-	-	-	-
	295 x 225	2	-	-	-	-	-	-
3170 ELV	295 x 340	2	295 x 340	2	-	-	-	-
	295 x 225	3	-	-	-	-	-	-
3850 ELV/MLV	365 x 340	1	365 x 340	1	365 x 340	1	340 x 340	1
	365 x 225	2	-	-	-	-	-	-
3870 ELV/MLV	365 x 340	2	365 x 340	2	365 x 340	2	340 x 340	2
	365 x 225	3	-	-	-	-	-	-
5050 ELV/MLV	485 x 365	1	485 x 365	1	485 x 365	1	480 x 365	1
	485 x 240	2	-	-	-	-	-	-
5075 ELV/MLV	485 x 365	2	485 x 365	2	485 x 365	2	480 x 365	2
	485 x 240	3	-	-	-	-	-	-

Baskets and inserts for bench-top autoclaves

Type	Stainless steel wire baskets		Stainless steel through for waste material	
	Dimensions (L x W x H) in mm	Capacity	Dimensions (L x W x H) in mm	Capacity
2540 EL/ML	400 x 170 x 140	1	400 x 165 x 100	1
3150 EL	500 x 210 x 185	1	500 x 210 x 125	1
3850 EL/ML	500 x 285 x 225	1	500 x 285 x 150	1
3870 EL/ML	680 x 285 x 225	1	680 x 285 x 150	1
5050 EL/ML	500 x 380 x 250	1	500 x 375 x 200	1
5075 EL/ML	360 x 380 x 250	2	355 x 375 x 200	2



*Tuttnauer reserves the right to change parts and accessories as necessary without further notice.
As components are subject to change, the photos in this catalog may not necessarily represent the up to date components.*



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-technological, and surgical markets. Drawing on this extensive experience, as well as input from its 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.

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After-Sales service

Tuttnauer after-sales service provides various services worldwide, including technical training centers for technicians in Holland and the USA, a network of trained technicians and service consultants who provide technical support within 24 hours by fax, e-mail or telephone, spare parts supply and complete workshop facilities in Holland and the USA which provide maintenance, repair and backup services.

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