



Systec Laboratory Autoclaves

Systec V-Series. Vertical floor-standing autoclaves.

Systec D-Series. Horizontal bench-top autoclaves.

Performance and competence.

Experience counts

We focus on only one thing: laboratory autoclaves. However, we do this exceptionally well! Our goal is always to make steam sterilization in the laboratory safer, easier, more precise and of course more economical. With over 20 years of experience and continuous intensive cooperation with experts in practice, we know how to provide optimal solutions for even the most complex sterilization tasks.

We have the knowledge and experience to produce the best results!

Our expertise and know-how are available for you worldwide through specialized and specially selected partners.



The power of innovation. For better sterilization.

Systemec laboratory autoclaves

Specially developed for laboratory sterilization applications, Systemec autoclaves make processes easier, safer, precise, reproducible and validatable.

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Systec V-Series. Vertical floor-standing autoclaves.

Compact dimensions

We have created a new class of autoclave with new dimensions: as before, compact and space-saving but with increased chamber height. Result: optimal loading capacity with most standard media bottles and Erlenmeyer flasks. Up to 50% more loading capacity.



8 models
40 to 150l
chamber
capacity



Dimensions and performance

Systec	V-40	V-55	V-65	V-75	V-95	V-100	V-120	V-150
Chamber dimensions Ø x depth in mm	344 x 450	344 x 600	400 x 500	400 x 600	400 x 750	500 x 500	500 x 600	500 x 750
Chamber volume in liters total/nominal	45/40	60/55	70/65	80/75	100/95	110/100	130/120	160/150
External dimensions in mm								
Height	920	920	960	960	1080	985	985	1110
Width	500	500	550	550	550	650	650	650
Depth	740	740	780	780	780	900	900	900
Heating capacity kW	3.6	3.6	9.0	9.0	9.0	9.0	9.0	9.0

Electrical connections for Systec V-40 and V-55: 220 – 240 V, 50/60 Hz, 16 A.

Electrical connections for Systec V-65 to V-150: 380 – 400 V, 50/6 Hz, 3-phase plus neutral, 16 A.

Other voltages and single-phase available on request.

Loading capacity* Erlenmeyer flasks

Systec	V-40	V-55	V-65	V-75	V-95	V-100	V-120	V-150
250 ml	3 x 11	4 x 11	3 x 14	4 x 14	5 x 14	3 x 22	4 x 22	5 x 22
500 ml	2 x 7	3 x 7	2 x 8	3 x 8	4 x 8	2 x 14	3 x 14	4 x 14
1000 ml	2 x 4	2 x 4	2 x 5	2 x 5	3 x 5	2 x 8	2 x 8	3 x 8
2000 ml	3	2 x 3	4	2 x 4	2 x 4	6	2 x 6	2 x 6
3000 ml	1	1	2	2	2 x 2	4	4	2 x 4
5000 ml	1	1	1	1	2 x 1	3	3	2 x 3

Loading capacity* Schott-Duran media bottles

Systec	V-40	V-55	V-65	V-75	V-95	V-100	V-120	V-150
250 ml	3 x 17	4 x 17	3 x 20	3 x 20	5 x 20	3 x 30	3 x 30	5 x 30
500 ml	2 x 11	3 x 11	2 x 15	3 x 15	4 x 15	2 x 22	3 x 22	4 x 22
1000 ml	8	2 x 8	2 x 9	2 x 9	3 x 9	2 x 15	2 x 15	3 x 15
2000 ml	4	2 x 4	5	2 x 5	2 x 5	8	2 x 8	2 x 8
5000 ml	1	1	2	2	2 x 2	4	4	2 x 4
10000 ml	1	1	1	1	1	2	2	2

*At max. loading, partially without baskets.

Systec D-Series. Horizontal bench-top autoclaves.

Compact dimensions

Compact with ideal chamber size in 7 models. Each model has an optimal loading capacity for most standard media bottles and Erlenmeyer flasks.





Dimensions and performance

Systemec	D-23	D-45	D-65	D-90	D-100	D-150	D-200
Chamber dimensions Ø x depth in mm	260 x 420	344 x 500	400 x 500	400 x 700	500 x 500	500 x 750	500 x 1000
Chamber volume in liters total/nominal	25/23	50/45	70/65	95/90	110/100	160/150	210/200
External dimensions in mm							
Height	500	550	930	630	730	730	730
Width	555	618	750	750	850	850	850
Depth	650	740	770	970	810	1050	1300
Heating capacity kW							
Systemec DX	2.80	2.80	9.00	9.00	9.00	9.00	9.00
Systemec DE and DB	2.30	3.00	4.50	4.50	4.50	7.25	7.25

Electrical connections for Systemec D-23 and D-45: 220 – 240 V, 50/60 Hz, 16 A.

Electrical connections for Systemec D-65 to D-200: 380 – 400 V, 50/60 Hz, 3 phases plus neutral, 16 A.

Other voltages and single-phase available on request.

Loading capacity* Erlenmeyer flasks

Systemec	D-23	D-45	D-65	D-90	D-100	D-150	D-200
250 ml	11	24	23	31	2 x 30	2 x 42	2 x 59
500 ml	8	12	15	21	2 x 15	2 x 24	2 x 40
1000 ml	3	8	9	13	12	18	23
2000 ml	–	3	6	8	7	9	14
3000 ml	–	–	3	4	6	8	11
5000 ml	–	–	–	–	3	5	7

Loading capacity* Schott media bottles

Systemec	D-23	D-45	D-65	D-90	D-100	D-150	D-200
250 ml	18	24	31	40	2 x 36	2 x 54	2 x 83
500 ml	10	18	23	31	2 x 26	2 x 40	2 x 59
1000 ml	4	10	15	18	18	26	40
2000 ml	–	5	8	10	12	14	23
5000 ml	–	–	3	4	6	8	11
10000 ml	–	–	–	–	2	3	4

*At max. loading, partially without baskets.

Systec V-Series and D-Series.

Three model ranges with different performance.

Systec VX/Systec DX

VX **DX**

For all laboratory applications, including sophisticated state-of-the-art sterilization processes. With numerous options for validatable sterilization.

Systec VE/Systec DE

VE **DE**

For basic laboratory applications.
With limited options for process optimization.

Systec VB/Systec DB

VB **DB**

For simple process applications. No options available for process optimization.



	VX	DX	VE	DE	VB	DB
Standard Features						
Integrated, separate steam generator	■					
Internal heating elements within the autoclave chamber			■		■	
Housing, support frame and pressure vessel made of corrosion-resistant stainless steel	■		■		■	
Temperature and pressure range 140 °C, 4 bar (except for Systec D-23)	■		■		■	
LCD display and fully automatic microprocessor control	■		■		■	
Number of sterilization programs	up to 25*		12		3	
Code-secured access rights for changing parameters and further safety-relevant intervention	■		■		■	
Internal memory for storing up to 500 sterilization cycles	■		■			
Timer for starting programs	■		■			
Autofill: automatic demineralized water feed for steam generation	■		■			
Flexible PT-100 temperature sensor	■		■		■	
Additional temperature sensor in condense exhaust	■					
Temperature holding function for liquids after program finish	■		■			
Special program for Durham tubes	■		■			
Calculation of F0 value	■		■			
Special program for waste sterilization with pulsed heat-up for more efficient air exhaust	■		■			
Water-cooled steam exhaust, thermostatically controlled	■		■			
Programmable automatic door-opening on completion of program	■		■			
RS-232 and RS-485 interfaces for external data transmission (network-compatible)	■		■			
Available options						
Touch-Screen control (Systec V-Series only)	□					
Extension of temperature and pressure ranges to 150 °C/ 5 bar (from chamber volume 65 liters and more)	□		□			
Options for process optimization						
Rapid cooling for efficient and safe cooling of liquids	□		□			
Vacuum system for validatable sterilization of solids and waste materials in disposal bags	□					
Superdry: for drying solids (only in combination with optional vacuum system)	□					
Exhaust filtration (including condensate inactivation) for safe sterilization of hazardous biological substances	□		□			
Options for documentation						
Integrated printer for batch documentation	□		□		□	
PC software for comprehensive documentation	□		□			
Documentation SD: data storage on SD card for up to 10,000 sterilization cycles and transmission of data to a PC	□		□			
Comlog: includes USB – and Ethernet-Connection and internal memory for up to 10,000 sterilization cycles, including documentation software on Comlog. The software can be called up independent of platform (PC, laptop, tablet, smart phone), facilitating remote service	□					
AuditTrail: unalterable and traceable documentation acc. to FDA 21 CFR Part 11	□					

- Systec autoclaves are delivered ready for subsequent installation of all options.
 - Further options and special programs as well as baskets and inserts, transport and loading systems on request.

■ = Standard
 □ = Optional
 *On request

Systec D-23 and D-45 with feed water reservoir

This makes both autoclaves mobile and flexible. With no fixed water connection, they can be used flexibly in different locations.

They can also be allocated directly to a specific work station on a temporary basis.

Design – pure innovation.

State-of-the-art engineering

All Systemec autoclaves have been newly developed and designed and represent state-of-the-art engineering. All mechanical and electronic components guarantee enhanced sterilization processes, hence enabling the lab to fulfill all appropriate requirements for today and for the future.



All-round quality

The pressure vessel is made of corrosion-resistant stainless steel 1.4571 (V4A) AISI 316 Ti and is thus easy to clean. An approved safety valve for excess pressure is included. The autoclave support framework and housing are also made of stainless steel. The highly efficient, high-quality Hanno-Tect insulation material releases no particles; Systemec autoclaves can thus be used under clean-room conditions.

Systemec autoclaves are fitted with the following connections at the rear:

	VX/DX	VE/DE	VB/DB
Demineralized water inlet for steam generation	■	■	
Compressed air	□	□	
Cooling water	□	□	
Common outlet	■	■	■
RS-232/RS-485 interfaces	■	■	
Flexible power cord with CEE plug	■	■	■

■ = Standard
□ = Optional

All according to norms and regulations

Equipped for the future! Systemec V- and D-Series are the first to be equipped for higher temperatures and pressures. The pressure vessel is designed for operations at 150°C and 5 bar. Optional temperature and pressure range extension accessories adapt all control and safety components to the higher temperature and pressure. This option can be retrofitted.

Exception: Extension of temperature and pressure to 150°C/5 bar is not available for Systemec D-23, D-45, V-40 or V-55 systems.

Systemec autoclaves are equipped as standard for sterilization temperatures up to 140°C and a steam pressure of 4 bar.

Exception: Systemec D-23 autoclaves are equipped only for 136°C and 3.8 bar.

Systemec autoclaves comply with the following standards:

Pressure vessel:

- 97/23/EG Pressurized Vessel Guideline.
- ASME Boiler & Pressure Vessel Code, Section VIII, Division 1.
- China Stamp.

Other guidelines:

- 2006/95/EG Low Voltage Directive.
- 2004/108/EG on Electromagnetic Compatibility.
- 2006/42/EG Machinery Directive.

All autoclaves are CE-certificated.



Safety and convenience

Novel automatic door-opening system

Easy but safe – on closing, the door is automatically locked by a circumferential ring system*. A special lip seal made of heat-resistant silicone provides reliable tightness; the more the steam pressure increases, the tighter the seal becomes – without the need for additional compressed air or other media!

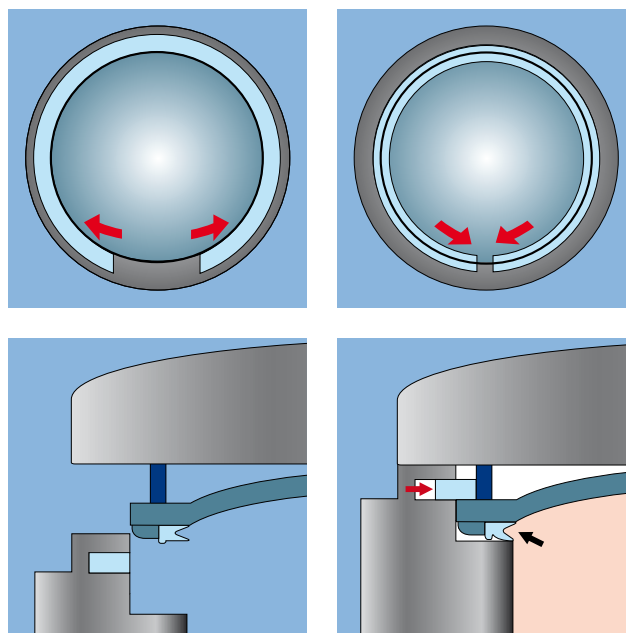
The door-locking system is temperature-dependent according to pressure vessel regulation TRB 402 and DIN 58946, Part II. The door remains locked as long as there is excess pressure in the chamber. The door and other parts of the pressure vessel and housing are made of stainless steel. The attractively designed front cover, which also incorporates the control panel, display and parts of the control processing system, is made of heat-resistant, insulating plastic. There is thus no risk of the operator coming into contact with hot components.

Automatic door-opening

The autoclave door functions automatically – either by pressing a button or for model ranges VX/DX and VE/DE automatically at the end of a program. A simple system but most useful in practice. Residual steam is exhausted automatically without intermission. Residual heat is used to dry the items being sterilized during the final short phase in the autoclave. Automatic door-opening is restricted to an angle of approx. 15°; this avoids possible contamination from the outside. Especially when items to be sterilized have to remain in the autoclave for cooling and drying this facilitates the working process. Subsequently, for removing the sterilized items, the door can be completely opened manually.

* Exceptions:

In the case of model D-23, a hook mechanism is used instead of a locking ring system. In models D-45, V-40 and V-55, the door is closed by means of a bolt.



Door open, circumferential locking ring in the "ready" position.

Door closed, circumferential locking ring in locking position. The internal steam pressure presses the lip seal between door and chamber.



Design – pure innovation.

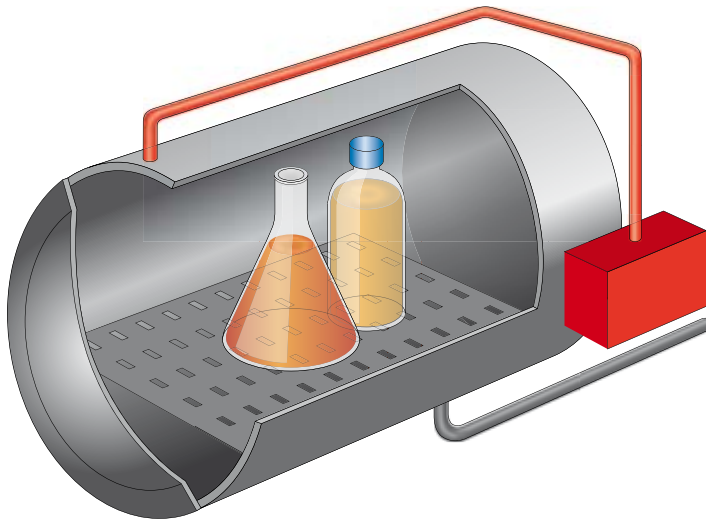
Steam generation by steam generator

VX DX

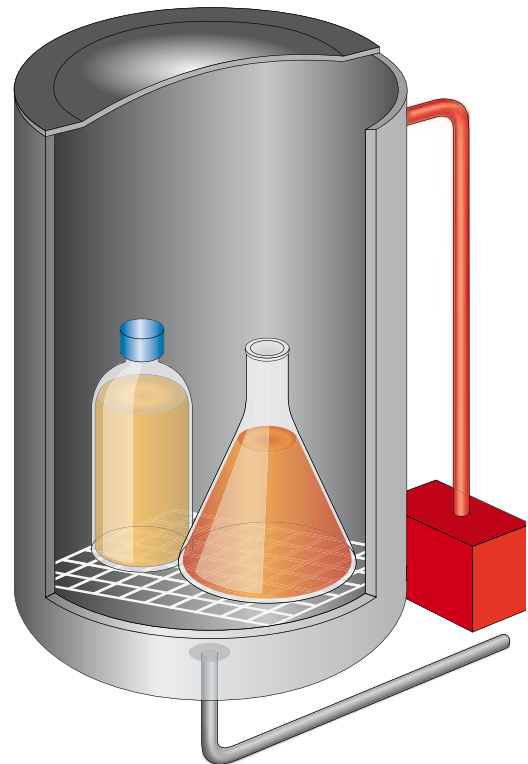
A separate steam generator is incorporated in the housing.

This has numerous advantages:

- No heating elements and no reservoir for dirty water in the chamber.
- In conjunction with the stand-by pre-heating function, only 10 min. heating time to 121 °C with an empty chamber is required.
- Improved air removal by suppressing the air to the bottom with its natural gravitation.
- Accuracy better than ± 0.3 K with empty chamber.
- Quicker cooling as neither the hot water in the chamber nor the separate steam generator need to be cooled.
- After cooling, steam is immediately available for the next sterilization run.



Systec D-Series

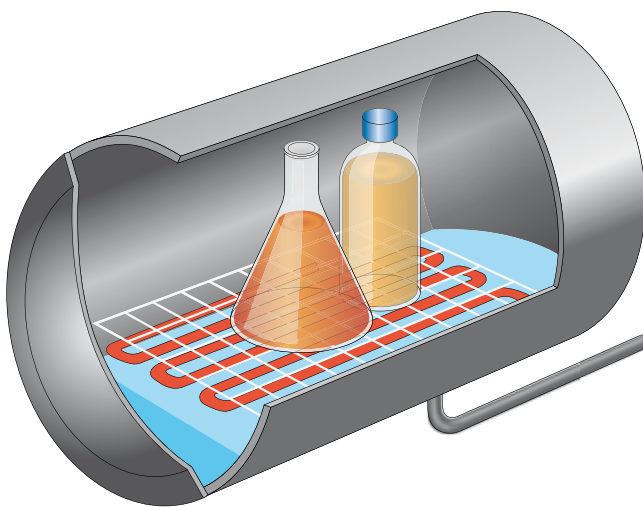


Systec V-Series

Conventional steam generation

VE VB DE DB

In this system, powerful heating elements are integrated directly at the bottom of the sterilization chamber. As required, water can be fed in manually or in models VE and DE, demineralized water can be fed in automatically using the DI-Water connection.



Systec D-Series



Systec V-Series

Condensation of steam instead of removal

VX VE DX DE

Exhaust steam is condensed automatically via a PT-100-regulated cooling system. This prevents odors and protects waste water piping that may be made of plastic.

Everything under control.

Standard operation via display

In all Systemec V- and D-Series autoclaves, control is via a membrane keypad with acoustic confirmation of input. The display is large and easy to read. Everything is logically positioned, ergonomic and easy to operate. Menu operation is in text form, selectable in German, English, French, Spanish and Italian – other languages optional.

All control functions are carried out by a specially developed microprocessor. Along with steam pressure, temperature and sterilization time, it also controls all options such as rapid cooling, pre- and post-vacuum and drying.

Dual sensors as standard

The regulation of pressure and temperature is via an electronic pressure sensor and a flexible temperature sensor respectively, the latter located in the chamber or in a reference vessel (for liquids).



Available programs*

VX **DX**

- 1–3 Solids
- 4–5 Waste bags
- 6 Liquid waste with regulated steam exhaust for cooling
- 7 Liquid waste with self-cooling
- 8–10 Liquids with regulated steam exhaust for cooling
- 11 Liquids with self-cooling
- 12 Cleaning
- 13 Vacuum test**
- 14 Bowie-Dick Test**
- 15–25 Free for individual programming

Available programs*

VE **DE**

- 1–3 Solids
- 4–5 Waste bags
- 6 Liquid waste with regulated steam exhaust for cooling
- 7 Liquid waste with self-cooling
- 8–10 Liquids with regulated steam exhaust for cooling
- 11 Liquids with self-cooling
- 12 Cleaning

Available programs*

VB **DB**

- 1 Solids
- 2 Waste bags
- 3 Liquids with regulated steam exhaust for cooling
- 4 Cleaning

*All programs can be individually parametered.

**Only in combination with vacuum system.

Optional operation by Touch-Screen technology for all VX models from 65 liter chamber volume

Operation is even quicker and easier using a 5.7-inch easy-to-read display with touch function. This innovation offers additional possibilities and increased flexibility when working with the autoclave.

For example, process data can be displayed numerically or graphically. 7 programs are pre-defined but can be expanded as required up to 100 by the user.

To initiate a new program, the user is guided through the process by menu dialog. Every new program is automatically allocated a permanent, unalterable name and can also be given an individual designation by the user. All process parameters can be individually altered.

Pre-defined programs

- 1 Solids
- 2 Waste bags
- 3 Liquid waste
- 4 Liquids
- 5 Cleaning
- 6 Vacuum test*
- 7 Bowie-Dick test*

VX

These can be expanded to 100 sterilization programs.
*Only in combination with a vacuum device.

Information:

Systec H-Series (separate brochure) autoclaves are equipped with Touch-Screens as standard.



Everything under control.

Alternative documentation

By printer

Optional with integrated printer for documentation of program type, batch number, date/time, temperature/pressure progress and sterilization phase.



VX

VE

DX

DE

By PC and documentation software

Via RS-232 and RS-485 interface directly connected to a PC or an ethernet network. Special software available for Windows for the documentation of all process data, including informative diagrams. The Systec ADS software processes documented data both graphically and numerically and can be used for parameterization and control of Systec autoclaves.

By SD card

Optional comprehensive documentation of up to 10,000 sterilization cycles via an integrated SD card.



By Comlog

For Systemec models VX* (from 65 l chamber volume) in combination with optional Touch-Screen facility.

This solution adds a USB and an Ethernet port for connection to an ethernet network. Includes documentation software on Comlog that is platform-independent and can be accessed by the user from any PC, laptop, tablet or smart phone. The internal memory card stores up to 10,000 sterilization cycles.

Comlog enables remote access via Internet, for example for Systemec service personnel (if approved by customer IT).

***Information:**

Documentation by Comlog and AuditTrail is also possible as an option with the Systemec H-Series (separate brochure).

By AuditTrail

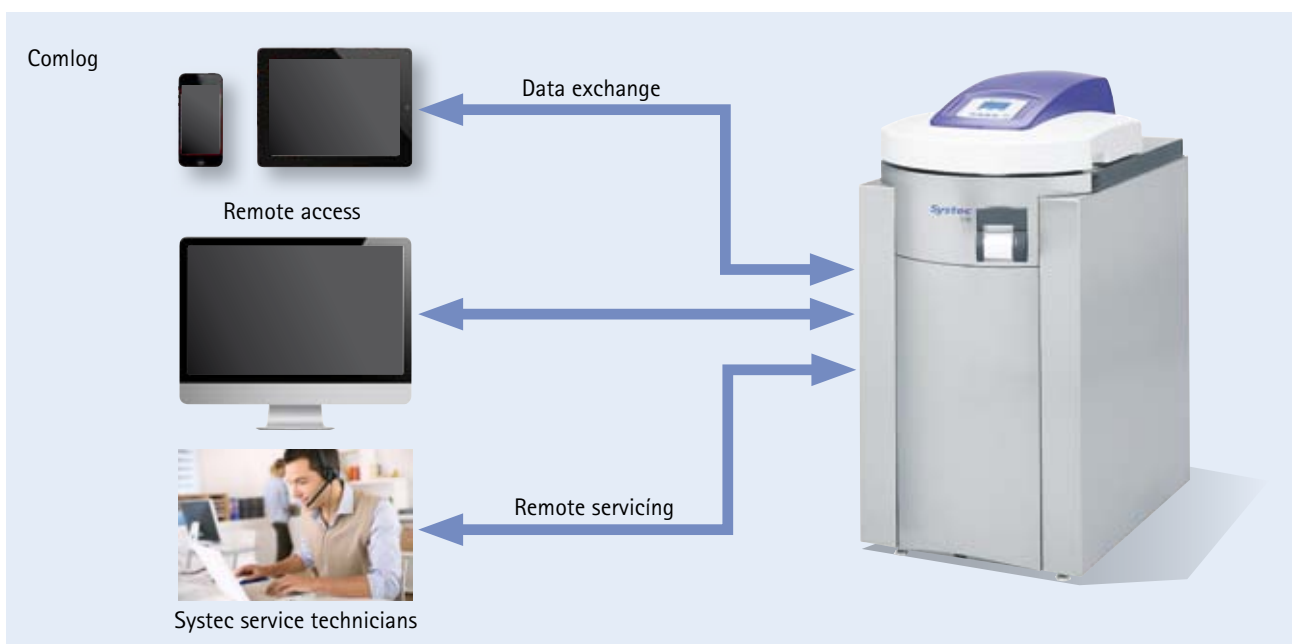
For Systemec models VX* (from 65 l chamber volume), in combination with the optional Touch-Screen and Comlog facilities.

This solution comprises all the functions of Comlog and enables documentation according to FDA 21 CFR Part 11.

AuditTrail allows to set-up and administer users for the autoclave. 5 different authorization levels are available specifying which actions can be carried out by which users. In addition, access rights for specific sterilization programs can be individually allocated.

Before any specific action, the user must register with user name and password. All actions carried out (e.g. change of parameters or starting/stopping programs) are documented and can be traced to the user, including time stamp (day/time).

All data generated through actions carried out by the user or the documentation of a sterilization cycle is protected from manipulation and is tagged with the electronic signature of the user.



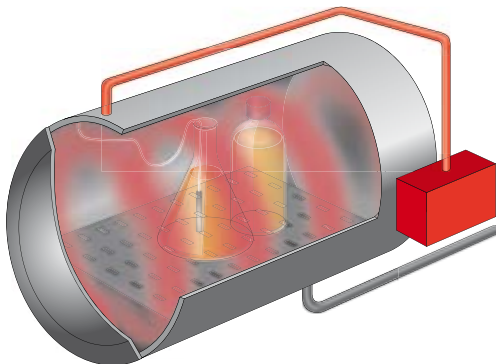
Sterilization of liquids.

Heating up

The actual sterilization time of e.g. 15 to 20 minutes at 121 °C is only a fraction of the total time involved for an autoclave procedure. Especially in the case of sterilizing liquids, the heating up and cooling down phases are considerably longer.

The conventional procedure

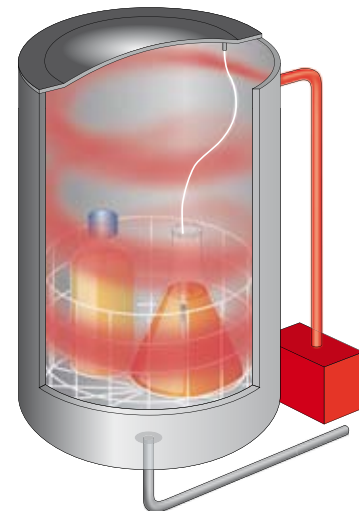
In previously used conventional systems, even if the intended sterilization temperature has been reached within the autoclave, the liquids to be sterilized are often only at about 100 °C; the temperature equilibrium time between chamber and liquids normally takes much longer.



Systec D-Series

Up to 50% shorter heat-up times as standard

Due to the combined temperature and pressure regulation, the chamber pressure is increased during the heat-up phase. The result: more rapid temperature equilibrium in the liquids and a shorter heat-up time.



Systec V-Series

Cooling

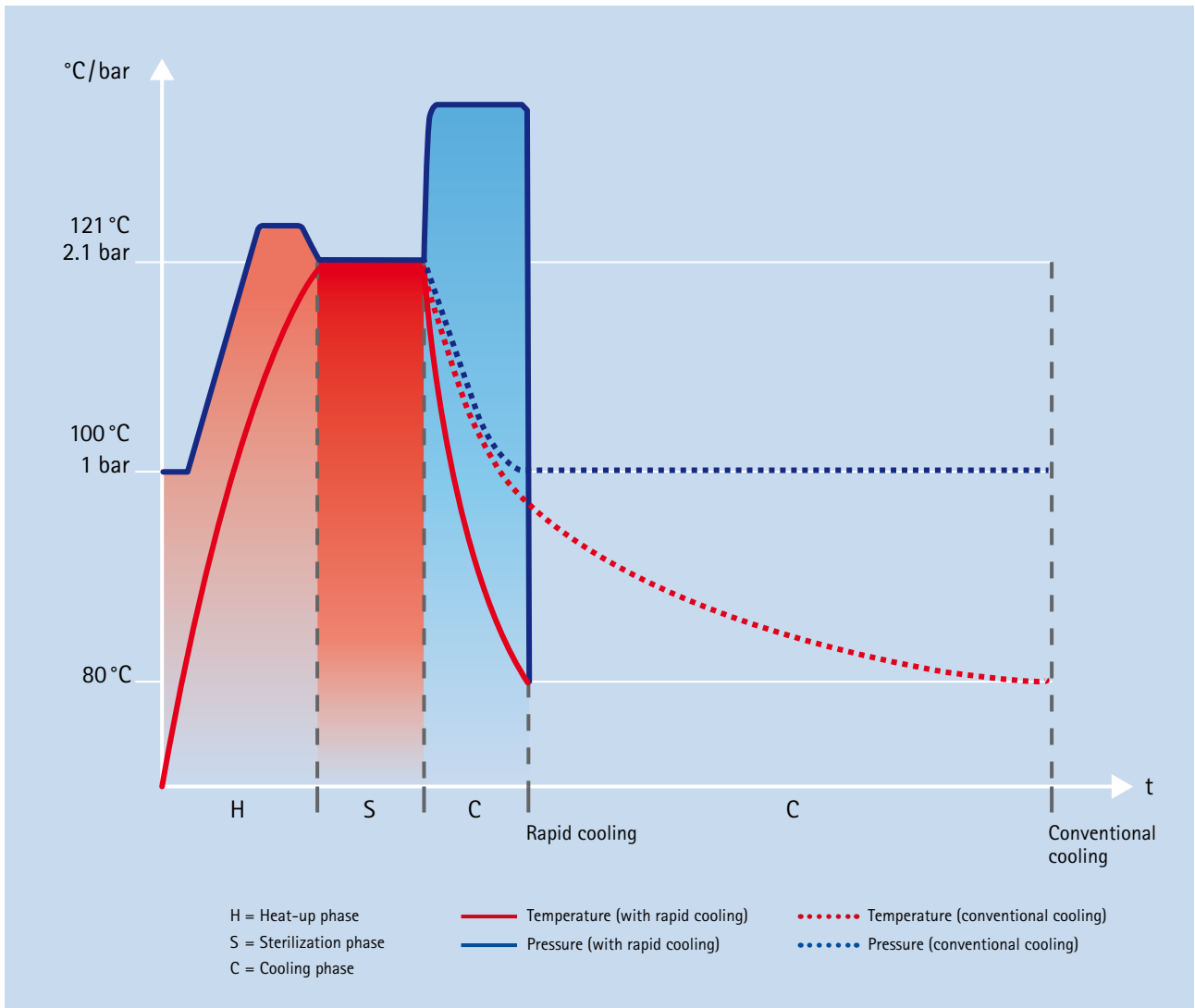
The cooling process for liquids is also very slow; this is because, without active rapid cooling, the heat can only be reduced to below 100°C by dissipating the heat via the chamber insulation by radiation (see diagram: conventional cooling).

New system- and process technology now make it possible to substantially reduce the overall time required for the sterilization process. This means that several hours of time can be saved! It also means that the media is not exposed to heat unnecessarily long time (see diagram: rapid cooling).

Systec offers many functions for its autoclaves guaranteeing safe liquid sterilization processes at higher productivity. Many of these functions are standard or available as options depending on the model range selected.

Standard functions in all models

- Temperature- and pressure-dependent door locking in line with international standards and regulations.
- Redundant process control; temperature and pressure are continuously monitored and controlled during the entire sterilization cycle.
- Rapid heat-up via optimized heat transfer to the liquid media.
- Flexible PT-100 temperature sensor for temperature measurement in a reference vessel:
 - Guarantees attainment of the desired sterilization temperature in the liquid media.
 - Guarantees cooling of the liquid media to a temperature that is safe for removal.



The times given in the diagrams are dependent on the number and size of the items to be sterilized.

Sterilization of liquids.

Cooling

VX VE DX DE

Systemec supplies autoclaves guaranteeing precise sterilization processes, safe handling and increased productivity. Numerous cooling functions are available for liquid sterilization.

Various optional rapid cooling systems enable the cooling times for liquids to be significantly reduced. This conserves culture media and makes for efficient utilization of the autoclave.

In addition to conventional cooling by regulated steam exhaust down to 100 °C and subsequent very slow self-cooling down to 80 °C, optional cooling systems for rapid cooling are available.

- Cooling with ambient air ventilation.
- Mantle cooling with cooling water.
- Mantle cooling with cooling water and support pressure.
- Radial ventilator for air circulation and accelerated heat removal from the chamber.
- Ultracooler.
- Spray cooling with recirculated and re-cooled sterile water and support pressure.

Water cooling with support pressure

VX VE DX DE

Permanently under control

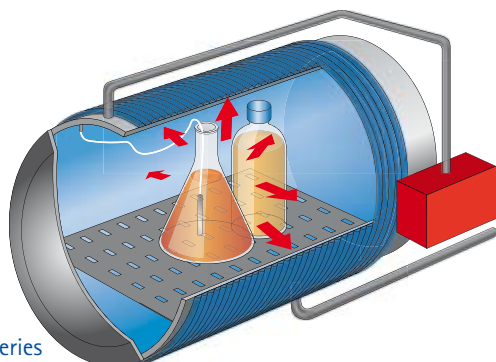
During the entire sterilization process, a flexible PT-100 temperature sensor monitors the water temperature in a reference vessel. It is thus guaranteed that the sterilization period begins only once the sterilization temperature has been attained in the liquid to be sterilized.

The cooling temperature is also constantly monitored. In accordance with relevant standards, to prevent delayed boiling, the lid can only be opened once the temperature of the liquid has been reduced to at least 80 °C.

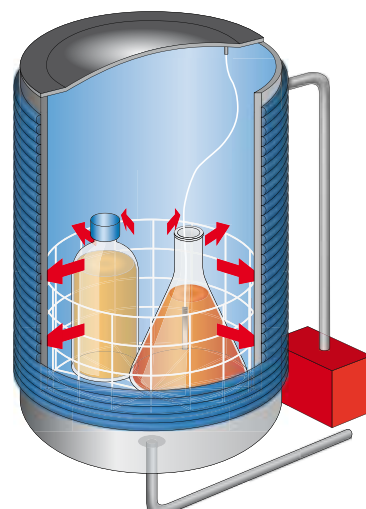
The use of support pressure in the form of sterile-filtered compressed air during the cooling phase reliably prevents the culture medium from boiling.

Advantages

- No loss of liquid due to boiling of the culture media.
- Improved productivity from reduced cycle times and the full utilization of the filling volume in each bottle.
- Prevention of delayed and over-boiling.
- Prevention of the risk of bottles bursting during or after sterilization.
- Prevention of re-contamination by the use of hermetically sealed bottles during sterilization.
- Reduction of cooling time by up to 60%.



Systec D-Series



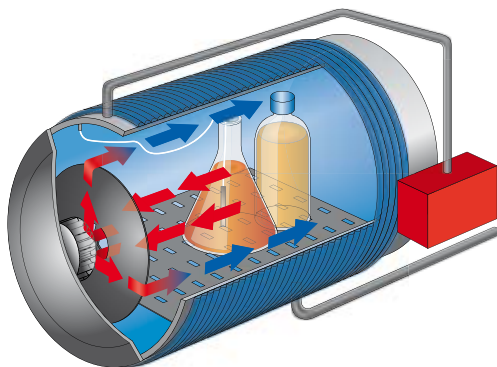
Systec V-Series

Radial Ventilator

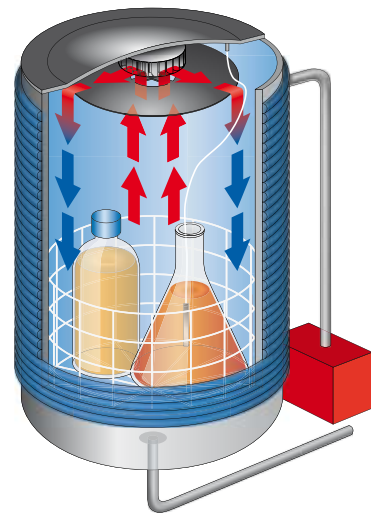
VX VE DX DE

Together with water cooling with support pressure, the ventilator ensures accelerated removal of heat from the sterilization items to the cooled chamber mantle. The ventilator is located in the lid of the chamber (no reduction of chamber depth!) and is driven by a magnetic motor fitted outside under the cover.

- Ventilation performance 71 m³/h.
- Reduction of cooling time by up to 70%.



Systec D-Series



Systec V-Series

Ultracooler

VX VE DX DE

In conjunction with optional water cooling system with support pressure and Radial Ventilator Systemec succeeded to reduce again the cooling time and hence the overall sterilization time considerably through integration of an additional heat exchanger.

- Reduction of cooling time by up to 90%.
- Depending on the load, cooling times between 15 and 60 minutes can be achieved.



Sterilization of solids and waste in disposal bags.

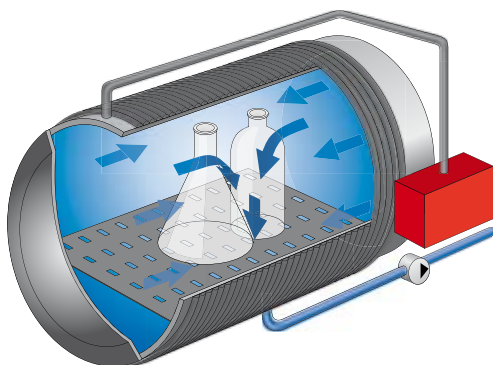
Vacuum system

VX DX

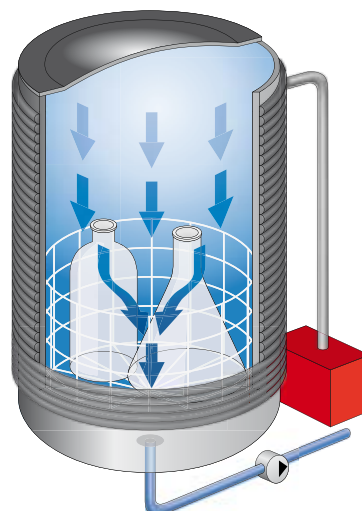
Typical solids are e.g. pipette tips (in boxes), empty glassware and waste in bags as well as porous materials such as filters or fabrics. For this type of sterilization, it is important to remove all air from the products to be sterilized to ensure precise, reproducible and validatable sterilization.

The vacuum device removes the air highly effectively from solids, tubing, porous materials, fabrics and disposal bags; in this way,

the steam is able to penetrate completely. The process includes a fractionated pre-vacuum phase in combination with the standard steam generator. Only in this way it is possible to achieve validatable sterilization of porous materials, solids, fabrics or waste in bags.



Systec D-Series



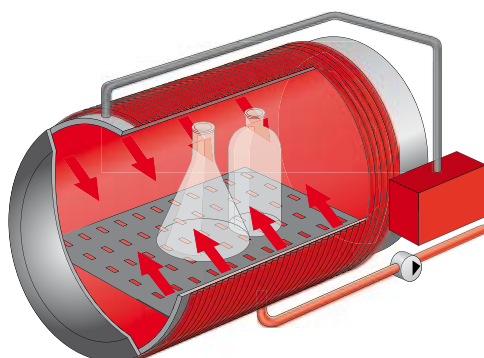
Systec V-Series

Superdry – for drying solids

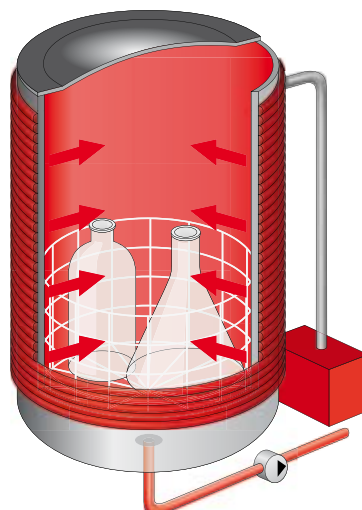
VX DX

This optional accessory increases the drying efficiency for solids and porous materials such as filters and fabrics. Heat energy from the standard steam generator is transferred to the heating coils around the body of the sterilization chamber and is used for

drying. Deep-vacuum drying using the optional vacuum device in conjunction with Superdry avoids the necessity for subsequent drying in a separate drying cabinet.



Systec D-Series



Systec V-Series

Sterilization of hazardous biological substances.

Permanently monitored – exhaust air filtration with condensate inactivation

For the sterilization of hazardous biological substances, Systec autoclaves can be fitted with an optional air exhaust filtration system.

The autoclavable sterile filter comprising a filter cartridge with PTFE membrane, pore size 0.2 μm , incorporated in a pressure-resistant housing, easy replaceable. The filter is automatically sterilized during each sterilization process, monitored by a PT-100 temperature sensor.

The condensate is retained inside the pressure vessel during the heating and sterilization phases and thus also sterilized. Through air exhaust filtration and condensate inactivation, it is ensured that no microorganisms can escape before end of the sterilization phase.

This ensures that all gases and liquids representing a hazard if they were to be released into the atmosphere are filtered or sterilized in-line.



Important note for effective sterilization.

Select the right process for every sterilization application:
 As already described, several options are available that are necessary to obtain correct and validatable results and rapid cooling times, especially in the case of liquids. The options available depend on the items to be sterilized. It is thus important for you to think carefully about your requirements so that the autoclave can be optimally configured to the tasks on hand.

A validatable sterilization process of confirmable biological efficiency can only be obtained if the correct instrument configuration is used. The table below provides help in establishing the desired configuration; however, we recommend obtaining additional advice from our experts.

Procedure:	Ventilation				Cooling		Drying		Other Exhaust air filtration
	Gravitation	Simple pre-vacuum	Pulsed excess pressure	Fractionated pre-vacuum	Conventional cooling with slow pressure release	Rapid cooling system with support pressure	Surface drying without vacuum	Drying with subsequent vacuum + Superdry	
Applications:									
Liquids	+	?	-	-	?	+	-	-	
Unpacked non hollow items	+	+	+	+			?	+	
Porous materials (filters, fabrics)	-	?	?	+			-	+	
Hollow items (pipette tips, empty glassware, tubes and hoses)	-	-	-	+			-	+	
Contaminated waste in destruction bags	-	-	?	+			-	-	+

+ Recommended procedure ? Possibly acceptable - Not possible



System accessories for ease of handling.

Vertical floor-standing autoclaves Systemec V-Series

Lifting device for heavy items

The electrically operated device with swivel arm facilitates the loading and unloading of heavy items. A mobile control panel with push-button operation makes for ease of use.

The device is attached to the side of the autoclave. The swivel arm has a special grip for the baskets that remain stable even under loading conditions.



Loading baskets and inserts

Stainless steel wire mesh baskets, stackable

Internal dimensions Ø x H (mm)	Capacity per autoclave:		V-65	V-75	V-95	V-100	V-120	V-150
	V-40	V-55						
305 x 190	2							
305 x 280	1	2						
360 x 225			2		3			
360 x 280				2				
360 x 355			1	1	2			
460 x 230						2		3
460 x 280							2	
460 x 355						1	1	2

Stainless steel basket perforated only in upper third, sealed bottom for waste sterilization

Internal dimensions Ø x H (mm)	Capacity per autoclave:		V-65	V-75	V-95	V-100	V-120	V-150
	V-40	V-55						
325 x 385	1	1						
350 x 355			1	1	2			
465 x 355						1	1	2

Stainless steel basket perforated only in upper third, sealed bottom for waste sterilization, with swivel lid

Internal dimensions Ø x H (mm)	Capacity per autoclave:		V-65	V-75	V-95	V-100	V-120	V-150
	V-40	V-55						
345 x 270			1	2	2			
450 x 350						1	1	2

System accessories for ease of handling.



Horizontal bench-top autoclaves Systemec D-Series

Support Tables

There is a special bench for each of the Systemec D-Series autoclaves. These are custom-dimensioned for the instrument in question. The benches are 72 cm high (other heights available at no extra charge) and make for ease of handling. They have a practical shelf e.g. for storing baskets etc.

Transport and loading trolley

Large autoclaves in particular can be easily and securely loaded using a special loading trolley. The items to be sterilized can either be placed directly on the sliding platform of the trolley or using a basket. The trolley can now be moved and docked to the autoclave and fixed in position. The handle can then be loosened to allow the platform to slide into the autoclave on fixed rails.

Loading shelves

To fully utilize the available space in the chamber, especially when sterilizing small items, the autoclaves can be fitted with loading shelves. The entire shelving system or individual trays can be removed.

Stainless steel quality

All parts are made of stainless steel and cleanly welded. Bench-top autoclaves are fitted with adjustable leveling screws to ensure stability. The transport trolleys have large rollers, two of them fitted with brakes, to ensure smooth running.



Loading baskets and inserts

Stainless steel wire mesh baskets

Internal dimensions L x W x H (mm)	Capacity per autoclave:						
	D-23	D-45	D-65	D-90	D-100	D-150	D-200
390 x 168 x 132	1						
490 x 265 x 180		1					
490 x 310 x 210			1				
688 x 310 x 210				1			
490 x 360 x 290					1		2
490 x 360 x 140					2		4
355 x 360 x 290						2	
735 x 360 x 290						1	
355 x 360 x 140						4	
735 x 360 x 140						2	

Stainless steel tub for waste sterilization

Internal dimensions L x W x H (mm)	Capacity per autoclave:						
	D-23	D-45	D-65	D-90	D-100	D-150	D-200
395 x 180 x 135	1						
495 x 265 x 180		1					
495 x 318 x 219			1				
696 x 318 x 219				1			
495 x 368 x 300					1		2
368 x 368 x 300						2	
747 x 368 x 300						1	

Custom developments for special applications.

Additional features and programs

For example for the food industry for the sterilization of liquids in closed vessels, plastic bottles, bags, cans, blister packs and food packs, e.g.:

- Devices and programs for sterilization in a steam/air mixture.
- Devices and programs for sterilization with hot water spraying and spray-cooling.

Custom constructions for individual tasks

Development and construction of modified systems such as:

- Autoclaves in dual system.
- Autoclaves for waste water sterilization (flow-through principle with integrated stirring and high-performance heating elements).
- Autoclaves for the sterilization of hand-wash water.
- Autoclaves for environmental simulation with programs for up to 99 days of testing, e.g. for:
 - Generation of steam and heat.
 - Generation of pressure and heat.
 - Heating up and cooling down in repetitive mode.

Detailed information on customized design available on request.

Test autoclaves are at your disposal in our test laboratory for the evaluation of your process parameters.



Quality performance.

Product related activities:

- Development.
- Design.
- Production of series products.
- Production of custom products.
- Application and technical advice.

Additional services:

- Installation and start-up.
- Special technical developments.
- Tests and process development.
- Individual service on-call.
- Contract service.
- Qualification and validation.
- GMP-compliant documentation.
- Consultancy on sterilization processes and special requirements.
- Process development.

Qualification and validation

Within the scope of our service we offer you qualification and validation work with GMP-compliant documentation:

- DQ – Design Qualification
 - Definition of requirements regarding the autoclave with respect to process technology.
- IQ – Installation Qualification
 - The autoclave is manufactured and installed according to the defined DQ requirements.
- OQ – Operation Qualification
 - The autoclave to function as specified in DQ.
- PQ – Performance Qualification
 - The autoclave sterilizes the product permanently according to pre-defined specifications.

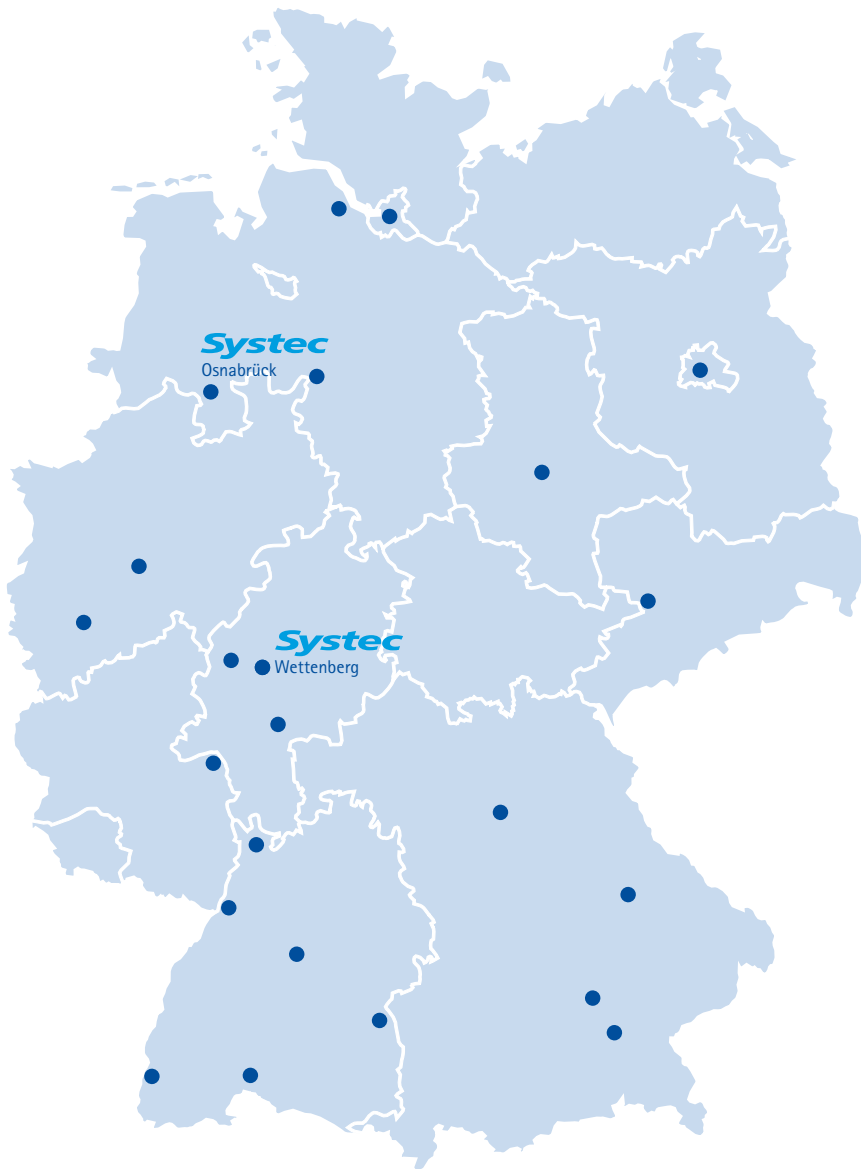
Quality Assurance according to ISO 9001

Our Quality Management is such that it complies with the most stringent requirements of testing and documentation.

Each component is subject to exhaustive control and each autoclave is checked and tested for all functions before delivery. A Certificate of Acceptance is provided.

Systemec service stations in Germany

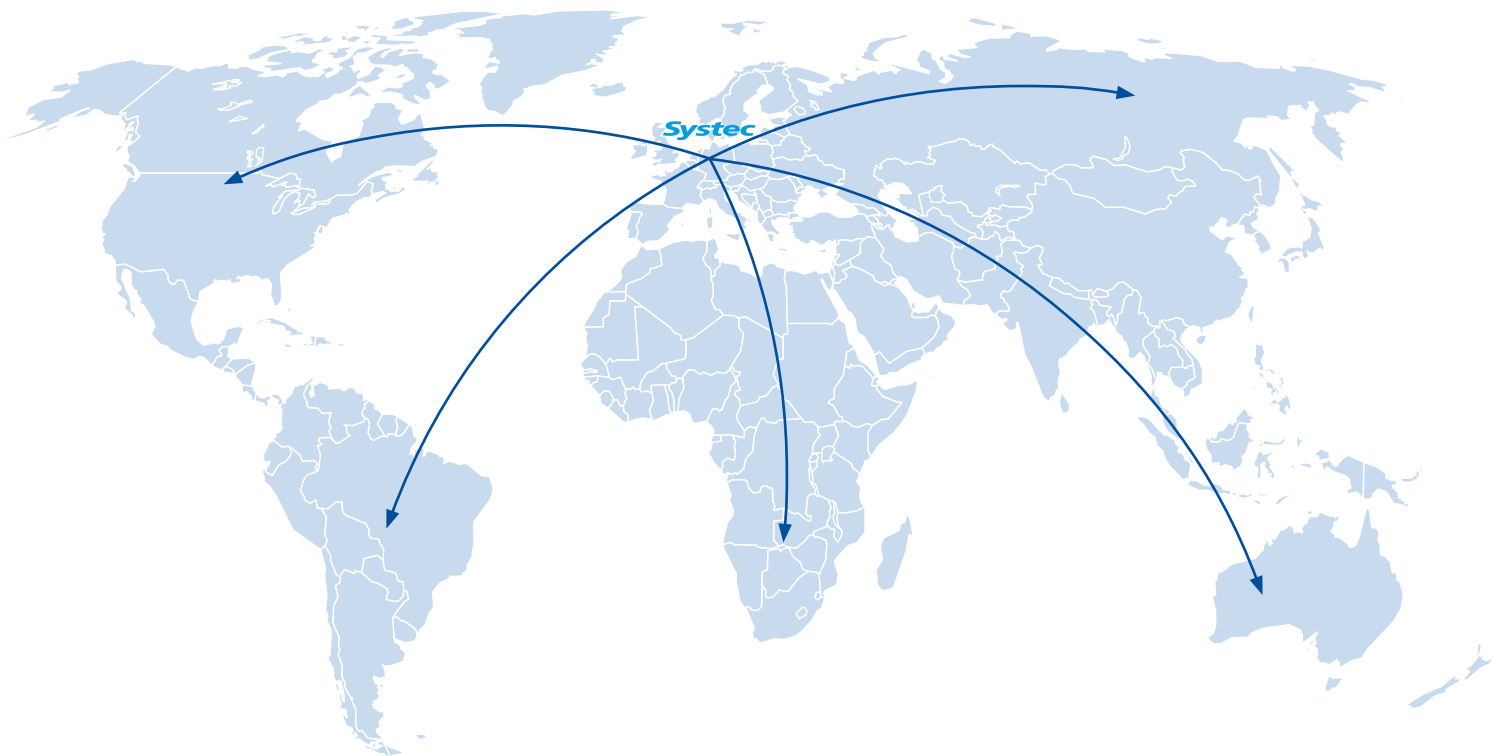
A Systemec service technician is always near you and contactable any time through our central service number: +49 641 98212-0



Sales and Service. Worldwide via trained partners.

Systec service locations worldwide

Systec laboratory autoclaves are currently operating reliably in numerous countries of the world. Our competent partners are available to you for consultancy, sales and service.



Complete program.

Autoclaves.

Autoclaves as horizontal or vertical construction.
Pass-through autoclaves for wall recessing in safety areas (e.g. biological safety laboratories or clean rooms).

- Vertical floor-standing autoclaves
Systec V-Series
40 to 150 liters
- Horizontal bench-top autoclaves
Systec D-Series
23 to 200 liters
- Horizontal floor-standing autoclaves
Systec H-Series
65 to 1580 liters
- Pass-through autoclaves
Systec H-Series 2D
90 to 1580 liters

Media preparation and handling.

Systems for the production and sterilization of microbiological culture media and the automatic filling and stacking of Petri dishes.

- Mediapreparators
Systec Mediaprep
- Petri dish filling line
Systec Mediafill

Systemec the autoclave company

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