LABOKLAV

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Autoclaves Made in Germany

www.shp-steriltechnik.de

LABOKLAV
STEAM STERILIZERS

Steam sterilization is the sterilization method with the widest range of applications – efficient, safe, reproducible and environmentally friendly.

All SHP Steriltechnik AG autoclaves work based on this principle and are characterized by innovative technical ideas. A wide range of chamber sizes between 25 l and 195 l, universal installation options as a free-standing or tabletop unit and numerous configurations provide individual solutions meeting your specific requirements. Typical areas of application for our units include all microbiological laboratories in research institutions, universities, quality controls in the pharmaceutical and food industries as well as waste sterilization, for example in the field of medical diagnosis.

Laboklav series autoclaves are characterized by their reliability and quality. We manufacture our products exclusively in Germany to high and continuously monitored quality standards. Our units are TÜV-certified and approved for series production and bear the CE mark. They comply with the following standards:

- Pressure Equipment Directive 97/23/EU
- DIN 58950: Sterilization - Steam sterilizers for pharmaceutical products
- DIN 58951: Sterilization - Steam sterilizers for laboratory use

As your steam sterilization partner, we are always on hand to advise you and offer:

- Comprehensive advice
- User training, including on your own premises
- IQ / OQ / PQ / DQ
- Technical support from trained and authorised service technicians

LABOKLAV 25

Technical specifications

Chamber volume	25 l
Chamber dimensions (Ø x D)	265 x 465 mm
Outer dimensions (W x H x D)	440 x 540 x 660 mm
Space required on worktop (W x D)	440 x 540 mm (plus 110 mm door overhang)
Weight	approx. 65 kg
Max. allowable pressure (PS)	2,8 bars
Max. allowable temperature (TS)	143 °C
Heating power	2 KW
Electrical connection	230V ~, 50 Hz, 16 A, alternating current
Sterilization temperature	98 – 135 °C, adjustable

The extremely compact and space-saving tabletop autoclaves in the LABOKLAV 25 series provide you with many options available from a large tabletop unit:

- Sterilization of liquids in open or slightly closed bottles, also available with an air recooling system
- Instrument sterilization, also with pre-vacuum and drying vacuum
- Waste sterilization at 134 °C (thermal inactivation)
- Optional exhaust air filtration

A unique design meets innovative technical solutions with optimal utilisation of the chamber volume. Our autoclave provides you with space for up to five 1 l standard laboratory flasks including caps. The chamber lid made of temperature-proof safety glass and the front cover made of safety glass allow you to visualize the processes in the chamber. LEDs illuminate the interior of the chamber and coloured LED operating lights indicate the unit's current status.

Laboklav 25 series autoclaves stand for easy operation and handling. Once the chamber door is pressed slightly after loading, it can be locked by a motor at a press of a button. A tank built into the unit, separated into 2 areas with level sensors, acts as a reservoir for the feed water as well as a collection point for the condensate. Both can be emptied separately. In all liquid programmes, the temperature in the liquid is controlled by an integrated flexible PT100 reference sensor which prevents the chamber door from being opened at an excessive media temperature (thermo locking device in accordance with IEC 61010-2-43).

Configurations

LABOKLAV 25B	basic unit
LABOKLAV 25M	with rapid recooling
LABOKLAV 25V	with vacuum system
LABOKLAV 25MV	with rapid recooling and vacuum system

All processes are fully automatic and controlled by a microprocessor. A clear and logically structured control panel facilitates unit operation. The internal 4 MB memory chip allows you to archive your cycle data quickly and easily. A dot-matrix printer is available as an option for automatic cycle documentation.

Loading capacity for standard laboratory bottles

Volume	Quantity
250 ml	12
500 ml	9
1000 ml	5

LABOKLAV 55 – 195

Configurations

LABOKLAV B	basic unit
LABOKLAV M	with integrated rapid recooling
LABOKLAV MS	with integrated rapid recooling and counter pressure
LABOKLAV MSL	with integrated rapid recooling, counter pressure and fan
LABOKLAV V	with vacuum system
LABOKLAV MV	with integrated rapid recooling and vacuum system
LABOKLAV MSV	with integrated rapid recooling, counter pressure and vacuum system
LABOKLAV MSLV	with integrated rapid recooling, counter pressure, fan and vacuum system

The LABOKLAV 55–195 series offers you flexible solutions for the most demanding requirements.

The well thought-out design of our units with a low loading height allows for easy loading and the baskets adapted to the chamber size permit optimal utilisation of the chamber volume. Optional loading system and lifting devices make charging and unloading of the autoclave child's play, even for heavy items requiring sterilization.

The basic unit is already suitable for the sterilization

- Liquids
- Solids
- Waste

Chamber sizes ranging from 55l to 195l provide solutions tailored to your application. The tabletop and free-standing unit installation options and comprehensive equipment options, particularly for demanding laboratory applications, guarantee you maximum flexibility. The focus always is on safe and validable processes, user safety and comfortable autoclave operation.

Individual installation options

A unique installation concept allows you to set up the autoclave as either a free-standing or tabletop unit - at no extra charge. It can be subsequently converted from a tabletop to a free-standing unit and vice-versa on-site at any time. Optionally, the chamber lid of free-standing units can swing to the right, the left or the rear. This guarantees optimal adaptation to the local installation conditions in your laboratory. Availability in three colours (blue, red and green) offers you additional options for customizing your unit.

All required aggregates are integrated under the unit housing. This avoids wasting precious space in the laboratory. A built-in tank for demineralized water is filled automatically or manually depending on your local circumstances to feed the separate standard high-performance steam generator.

Steam generation using the built-in steam generator

LABOKLAV STEAM STERILIZERS

Safe and easy locking system

The chamber lid can be easily and effortlessly closed and opened by a motor at a press of a button. Here too, particular attention has been given to your safety. Once you have gently pressed the chamber lid, a motor closes it in two steps. Opening the autoclave while the process is in operation is out of the question. It can only be opened in safe conditions.

Thermal locking system as standard

The units are equipped as standard with a flexible reference temperature sensor for creating a thermo lock in accordance with IEC 61010-2-43. For the sterilization of liquids, the flexible reference temperature sensor controls the temperature in the liquid to be sterilized and thus guarantees a safe process. The sterilization time only starts when the required sterilization temperature has been reached. The flexible reference sensor also plays an important role during the cooling phase. The chamber lid can only be opened once the temperature of the liquid has fallen below boiling point.

Steam exhaust condensation is integrated as standard into all units to protect the drain pipes. Any condensation forming is cooled by the addition of tap water at the outlet and your drain pipes are thus protected from damage by steam and hot condensate. A PT100 temperature sensor controls the temperature at the unit's outlet and regulates the addition of tap water. The temperature at the outlet can be gradually adjusted.

Operation and documentation

Each autoclave in the Laboklav series is equipped with a simple and easy-to-understand control panel with a large LCD display. All the important program parameters such as temperature, pressure and time can be read throughout the cycle.

Depending on the equipment version, the unit is equipped with up to 20 different programs. It is possible to allocate individual programs and program designations to program channels.

As standard, all autoclaves are equipped with an integrated 4 MB memory chip for archiving up to 200 cycles. Optionally, the cycles can be documented using a built-in dot-matrix printer.

The touch-panel control system offers adiditional cycle documentation options. Here, a PDF file of each cycle can be automatically generated and later read comfortably and simply using an USB interface or SD card. An integrated Web browser allows you to transfer all relevant process data onto your PC. Upon request, a remote diagnosis can also be performed on the unit in this way.

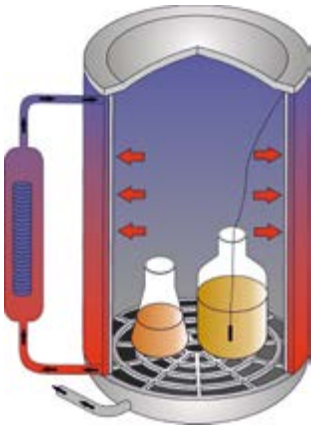
Built-in dot-matrix printer

LCD display with clear keyboard

LABOKLAV
STEAM STERILIZERS

Options for demanding applications: Efficient rapid recooling with double jacket

An effective and rapid recooling system for liquid sterilization significantly reduces your cycle times and allows you to perform several cycles in a working day.

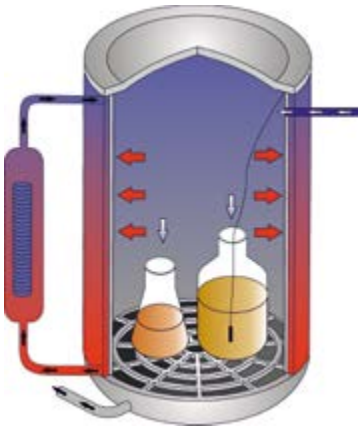


The Laboklav 55 -195 series' recooling system operates according to the heat exchanger principle. Demineralized water from the storage tank passes through the double jacket, cools the entire chamber and flows back into the storage tank where it is cooled down by a cooling coil fed with tap water.

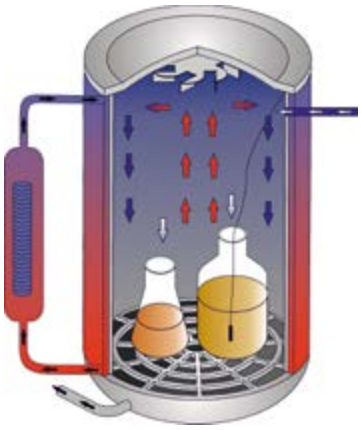
The expensive demineralized water is recycled during the cooling process. Our autoclaves therefore do not consume expensive demineralized water for recooling processes in liquid programmes and significantly reduce their operating costs.

Recooling with double jacket, M version

If the recooling system is expanded with the counter pressure option, liquids can be sterilized in open bottles without any loss of liquid. The cycle time is also further reduced.



Recooling with double jacket and counter pressure, MS version



The combination of a water recooling system with counter pressure and a built-in fan is the fastest and most effective recooling system. The powerful fan mixes the temperature gradients in the chamber during the cooling process and ensures uniform and quicker re-cooling.

Furthermore, this equipment allows for the sterilization of pressure-tight bottles without any undesired bursting of the bottles during the process.

Recooling with double jacket, counter pressure and fan, MSL version

LABOKLAV 55 – 195

Deaeration using a pre-vacuum and a drying vacuum

Successful sterilization is only possible in saturated steam conditions. This requires complete and efficient chamber deaeration. Thus it can only be guaranteed with a vacuum system, particularly for products that are difficult to deaerate such as hoses or textiles. A simple or fractional pre-vacuum quickly and safely removes the air from the chamber.

Especially for the sterilization of, for example, pipette tips and filters, a drying vacuum offers the major benefit that the sterilizing goods no longer have to be dried separately in the drying cabinet. For all Laboklav series autoclaves, the drying vacuum including heating of the jacket for effectively drying the loading is included as standard in the vacuum option.

Drying vacuum with heating of the double jacket, V version

Exhaust air filtration – to protect the user and the environment

Sterilization of infectious or genetically modified materials makes special demands on the autoclaves. An exhaust air filtration system protects the user and the environment from dangerous germs that can enter the environment during deaeration of the chamber and allows the autoclaves to be used in safety level 2 laboratories or higher.

Exhaust air filtration includes sterilization of the condensate and temperature-controlled inline sterilization of the filter cartridge. A pressure-resistant stainless steel housing encloses the filter element and prevents the filter from expanding. We only use filter elements with manufacturer certificates. An integrated batch counter checks the filter element's service life and indicates when the filter should be replaced in accordance with the manufacturer's instructions.

Technical specifications

LABOKLAV	55	80	100
Chamber volume	55 l	80 l	100 l
Chamber dimensions (Ø x D)	410 x 460 mm	410 x 610 mm	410 x 760 mm
Outer dimensions of free-standing unit (W x H x D)	740 x 765 x 600 mm	740 x 915 x 600 mm	740 x 1065 x 600 mm
Outer dimensions of tabletop unit (W x H x D)	740 x 600 x 765 mm	740 x 600 x 915 mm	740 x 600 x 1065 mm
Weight	115 kg	155 kg	185 kg
Max. allowable pressure (PS)	2,8 bars	2,8 bars	2,8 bars
Max. allowable temperature (TS)	143 °C	143 °C	143 °C
Heating power of steam generator	3 - 6 KW, selectable	3 - 10 KW, selectable	6 - 10 KW, selectable
Electrical connection	3N 400 V ~, 50 Hz, 16 A	3N 400 V ~, 50 Hz, 16 A	3N 400 V ~, 50 Hz, 16 A
Sterilization temperature	98 – 135 °C, adjustable	98 – 135 °C, adjustable	98 – 135 °C, adjustable

LABOKLAV	135	160	195
Chamber volume	135 l	160 l	195 l
Chamber dimensions (Ø x D)	500 x 660 mm	500 x 760 mm	500 x 990 mm
Outer dimensions of free-standing unit (W x H x D)	840 x 965 x 700 mm	840 x 1065 x 700 mm	840 x 1215 x 700 mm
Outer dimensions of tabletop unit (W x H x D)	840 x 700 x 965 mm	840 x 700 x 1065 mm	840 x 700 x 1215 mm
Weight	195 kg	210 kg	245 kg
Max. allowable pressure (PS)	2,8 bars	2,8 bars	2,8 bars
Max. allowable temperature (TS)	143 °C	143 °C	143 °C
Heating power of steam generator	6 - 10 KW, selectable	6 - 10 KW, selectable	10 KW
Electrical connection	3N 400 V ~, 50 Hz, 16 A	3N 400 V ~, 50 Hz, 16 A	3N 400 V ~, 50 Hz, 16 A
Sterilization temperature	98 – 135 °C, adjustable	98 – 135 °C, adjustable	98 – 135 °C, adjustable

Tabletop unit loading capacity, standard laboratory bottles

LABOKLAV	55	80	100	135	160	195
250 ml	44	60	72	80	80	120
500 ml	15	20	24	25	26	39
1000 ml	11	14	16	18	18	27
2000 ml	6	8	8	9	10	15

Free-standing unit loading capacity, standard laboratory bottles

LABOKLAV	55	80	100	135	160	195
250 ml	63	84	105	124	155	186
500 ml	14	28	42	42	63	63
1000 ml	9	18	27	30	45	45
2000 ml	5	10	10	16	16	24