

HMC
EUROPE

Laboratory- and sterilisation equipment

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PROFILE

Consistent marketing of technologies and the conversion of new ideas create product ranges, that are tailor-made for the requests of modern laboratories. Results of discussions with purchasers and users out of industry, chemistry, research and medicine.

Quality at first place.
HMC stands for competence, innovation and reliability.

Whether practical and economical small tabletop sterilizers or vertical autoclaves up to 130 litres are required. HMC offers products which are used in the following areas: in biotechnology, in the agricultural economy, in the clinical laboratory and also in environmental research in biology, pharmacy and chemistry.



Laboratory- and sterilization equipment

Service means serving - serving you, the customer.

We take that literally!

You benefit from 80 years of experience in sterilization – experience you can put to work for you when looking for solutions to complicated problems and difficult tasks with limited resources.

We offer simple and cost-effective solutions.

And after your purchase?

We deliver on time and give you a thorough introduction to your unit. From first commissioning to maintenance agreements, from qualification to validation: we are right there for you.

HMC EUROPE

Laboratory- and sterilization equipment



HG SERIE

HMC steam sterilizers, vertical units
50, 80, 113 and 133 litres



HV SERIE

HMC steam sterilizers, vertical units
25, 50, 85 and 110 litres



HMT SERIE

HMC steam sterilizers, table top units
16 and 24 litres



SAFETY CABINETS

HMC Biological safety cabinets
Table top units BSC-700II



WASHERS

smeg Laboratory glassware washers
GW 3060, GW 4090, GW 6090



CYCLONE

HMC Magnetic stirrers
Extremely flat

From first using...

Procedure

The sterilization process has remained essentially unchanged since the times of Louis Pasteur and Robert Koch. Basically, sterilization is effected in a pressure vessel in an atmosphere of saturated steam in the absence of residual air. Depending on the items to be sterilized and the microorganisms to be eliminated, the sterilizing temperature will be either 121° C (1.1 bar overpressure) or 134° C (2.2 bar overpressure). To obtain a safe pressure/temperature correlation, all residual air has to be meticulously removed (vented).

Since sterilizing conditions do not yet prevail in the sterilization chamber during the venting phase (because the sterilizing temperature has not been attained and the holding time has been far too short at that point), a contaminated steam/air mixture is emitted by the steam sterilizer during venting. For this purpose an exhaust-air filtration is recommended.



Louis Pasteur (1822 - 1895)

Sterilization is a function of temperature and time

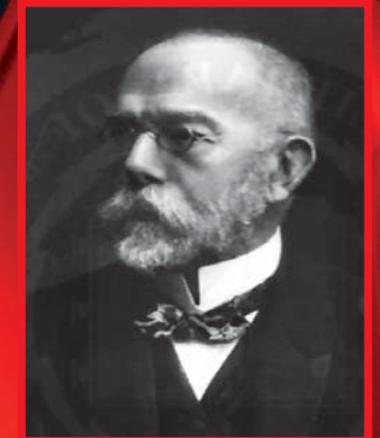
Only sufficient holding times can assure sterilization success. In microbiological laboratories, the sterilization time is usually 15 to 20 minutes. It should be noted that liquids and culture media take much longer to reach the required sterilization temperature due to delayed heat conduction.

The sterilization time must be calculated from the point in time at which the core of the items to be sterilized has reached the required sterilization temperature. At the end of the holding time, the materials in the chamber will be sterile. Glass or instruments can be quickly taken out once the steam has been removed and the pressure has been released. Liquids should be cooled quickly to minimize liquid loss. The laboratory staff must never be endangered by delayed boiling (causing the liquid to overboil explosively).

Why steam sterilization?

The high heat storage capacity of water, the additional heat released during the condensation of steam and the moisture contained in the steam form the basis of the excellent microbiological effect of steam.

By contrast with chemical sterilization or sterilization with hot air, both of which are suitable only for heat-resistant materials such as glass or metal instruments, steam sterilization is the generally accepted sterilization mode in the microbiological laboratory. From sample preparation to destruction sterilization, steam sterilizers (or autoclaves) can be used in an environmentally friendly manner.



Robert Koch (1843 - 1910)

STERILIZING SIMPLY AND WELL

...to maintenance

Selection criteria

- What legal provisions must be complied with?
Genetic engineering laws, laws concerning the prevention of epidemics...
- Must other provisions be met? GLP, GMP...
- Space requirements, minimum sterilization chamber volume
- Uses: Sample preparation, waste sterilization
- Sterilization of high infectious materials, documentation
- Calibration, validation, qualifications - what requirements must be fulfilled?
- Constructive requirements, electricity, demineralized water, disposal...
- Operating and secondary costs
- Customer service
- Safety, quality and price

Quality has its price ...
... but it doesn't have to be expensive!

HMC EUROPE

HV SERIES



HMC EUROPE

RELIABILITY

Four sizes for your lab

Whether you go for the 25, 50, 85 or 110 litre sterilization chamber model – all HV series sterilizers come on wheels and offer easy handling thanks to low loading heights.

The metal housing are powder-coated and easy to clean. Recessed handles facilitate easy manipulation. Heat-resistant edge beads prevent injuries. Steam condenser included.

Quality included

All sterilization chambers are polished and made of high-alloy stainless steel for easier cleaning.

The vent valve has no dead spaces and is always safe to operate. The electrical heater directly heats the feed water for maximum efficiency and features triple protection against damage.



Safety included

All HMC steam sterilizers are manufactured at a modern plant using state-of-the-art processes and technologies. The design has been approved by TÜV Bayern e.V. All units comply with all applicable European standards and regulations and bear the CE mark.

Flexible temperature sensor - Thermolock

Flexible temperature sensor for precision termination of the sterilization time by monitoring the media temperature. Thermolock pursuant to EN 61010-2 and related national regulations.



Automatic feed water

Direct connection to a supply of demineralized water (supply pressure 2 bar). Feed-water levels are checked before each sterilization cycle. Water is automatically added if required.

Control unit

The control unit is protected when the lid is open. It cannot be damaged by rotating or moving baskets.

Display with back-lit digits and status display. No key switch required. Once a program has been activated, each step of the program is indicated in the display, together with the remaining sterilization time in minutes.

The bright and easy-to-read display shows the current pressure and temperature, processing time and any troubleshooting messages. Programs can be activated only if the lock is completely closed.

Exhaust-air filter - Safety for people and environment

An optional accessory to ensure safe emission-free sterilization of high infectious pathogens and genetically modified materials. During the venting phase, the steam presses the non-sterile residual air from the chamber into a filtration system. Pathogens are retained and sterilized together with the content of the sterilizer and the filter cartridge (inline sterilization).

Condensate sterilization is designed into the unit. Any condensate produced remains in the chamber without being removed. Exhaust air filtration is recommended for protection class / safety level L1 / S1, it is mandatory for L2 / S2 and higher.



QUALITY

Spent-steam condenser

A spent-steam condenser condenses the steam generated by the sterilizer during the operation. This prevents fogging of instruments and unpleasant odours.

All HV-L series units are equipped with an integrated spent-steam condenser and a floor discharge valve. Of course there is a floor stand for sterilizing baskets.

SAFETY

Batch documentation

Batch documentation makes processes transparent, assures quality and offers protections against legal claims.

Batch printer or software for direct recording of sterilization data to demonstrate successful sterilization.

Dual sensor system

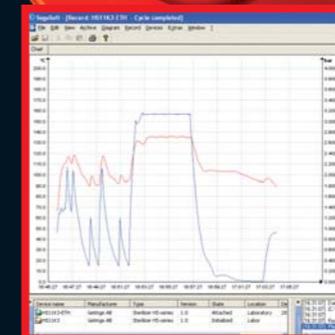
Our high-precision temperature control is double-checked by monitoring the pressure. This also allows a controlled temperature increase in the heating phase that shortens batch times.

Quicklocks

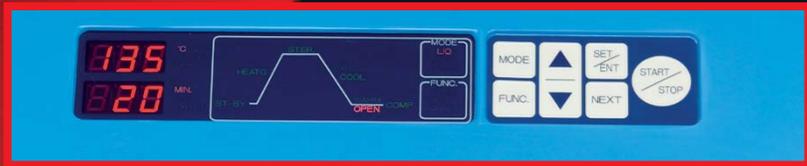
The simpler the design, the safer the lock! The locking lever can be actuated with one finger – using little force and without damaging fingernails. It positions up to twelve pressure- and temperature-controlled bolts for opening or closing. No moving seals!

The lid gasket is not subjected to any mechanical friction and can easily be replaced if required. The control unit is rotated out of the way when the lid is opened to protect it from damage. The weight of the lid is completely balanced by a torsion spring.

Any condensate dripping from the lid is collected and fed into the spent-steam condenser, keeping the floor dry.



CONTROL



Thermolock with sterilization time control

The European standard EN 61010-2 and national regulations require the use of a thermolock when sterilizing liquids. Thermolocks prevent hazards to the laboratory staff by delayed boiling. This is done by checking for the hazard at its source – directly inside the potentially hazardous liquid or culture medium. The lid cannot be opened until the pressure has been equalized and the media temperature has fallen below the reference value.

All parameters may be set individually before activating the program. For safety reasons, no changes to the parameter settings are possible once the program has been activated. During sterilization, the sterilization chamber is continuously post-vented. This prevents the formation of spaces with lower temperatures and of air inclusions, making sterilization a safer process.

Single-key programming

The most important programs can be activated by pressing a single key:

- | | |
|-----------------------|--|
| Solid sterilization: | With fast steam release |
| Liquid sterilization: | With variable self-cooling |
| Liquid sterilization: | With rapid-cooling for thermally unstable materials |
| Liquid sterilization: | With subsequent post-heating cycle |
| Agar program: | Prepares agar and keeps it ready for processing (thermostatic heating) |
| Overnight program: | Timer-controlled - load at night, remove sterile items in the morning |
| Waste sterilization: | Mixed loads with low liquid content |
| Standby mode: | To save energy |



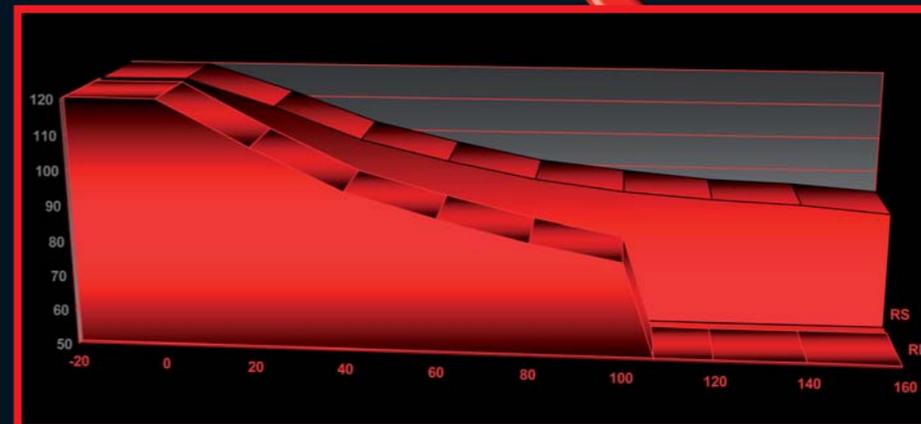
RAPID COOLING



Active recooling

Protracted times in the sterilizer may destroy thermally unstable liquids; agar may become brown. Active rapid cooling using a fan reduce cooling times by up to 40% compared to self-cooling.

This reduces batch times and allows the sterilizer to be used more efficiently, day after day.



Air cooling

„Plug-in“ rapid cooling. When the sterilization time is over, the chamber is cooled with a vent. This is a simple, cheap and effective solution.

The cooling time is shortened by approximately 40% compared to self-cooling at a removal temperature of 80° C.

No external connections are required.

TECHNICAL DATA



Loading capacity		HV 25	HV 50	HV 85	HV 110
Model					
Square laboratory flasks	500 ml	8	14	26	52*
Round laboratory flasks	1000 ml	4	8	16 - 18	16 - 18
Erlenmeyer flasks	500 ml	4	8	16	32*
Erlenmeyer flasks	1000 ml	2	6	10	10
Solids approx.	kg	8	15	25	29
Waste approx.	kg	8	15	25	28

* with rack

Technical specifications

Model		HV 25	HV 50	HV 85	HV 110
Chamber volume	litres	25	50	85	110
Chamber dimensions Ø x H	mm	240 x 550	300 x 710	420 x 615	420 x 795
External dimensions W x D x H	mm	480 x 460 x 950	540 x 530 x 1040	660 x 650 x 1000	660 x 650 x 1180
Working temperature	°C	105° - 126°	105° - 135°	105° - 128°	105° - 123°
Warming temperature	°C	45° - 60°			
Maximum working pressure	bar	1,4	2,2	1,6	1,2
Special cycle	°C	60 - 100 °C for culture media			
Timer		1 minute to 7 days			
Sterilization time		1 to 250 minutes			
Power	kW	1,5	2,0	3,0	4,0*
Power supply	V	AC 220 V / 240 V			
Weight	kg	41	57	71	81
Locking mechanism		Single-level quicklock			
Mark		CE, TÜV Bayern e.V.			
Boiler material		SUS304 (stainless steel)			
Safety features		Electromechanical safety closure, safety valve, low-water interrupt, overpressure protection switch, overheating protection switch, circuit breaker, diagnostic messages (visible and audible)			
Order No.		20000	20001	20002	20003

* Increased heating power on request



Sterilizing baskets and cans

Made of electropolished stainless steel. The use of sterilization cans is recommended for sterilizing waste and liquids.

OPTIONS

Expansion levels and accessories	Order No.
Flexible temperature sensor	50001
Air cooling RL	50002
Integrated printer	50003
Exhaust-air filtration	50004
Automatic feed water connection	50017
PT 100 temperature-sensor for external printer or SegoSof [®] software	50005
GLP package consisting of integrated printer and exhaust-air filtration	50021
SegoSof [®] process documentation, automatic paper-free archive, data output as graphics or charts in Adobe [®] PDF format and with digital signature.	50031
Lifting device HV 85, (Lift with swivel arm, load and unload of baskets up to 30 kg)	50032
Lifting device HV 110, (Lift with swivel arm, load and unload of baskets up to 30 kg)	50033

Beschickungskörbe aus Edelstahl		
electropolished	internal dim. Ø x H mm	Order No.
HV 25	225 x 250	50006
HV 50	280 x 225	50007
HV 85	390 x 290	50008
HV 110	390 x 380	50009

Stainless-steel sterilizing cans			
electropolished	internal dim. Ø x H mm		Order No.
HV 25	225 x 260	no holes	50010
HV 50	280 x 220	no holes	50011
HV 85	390 x 285	One row of holes (lower third)	50012
HV 110	390 x 375	Two rows of holes (lower third)	50013

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from qualification to validation: we are right there for you.

**WE WANT YOU TO BE ABLE TO DO ONLY ONE THING
- STERILIZING SIMPLY AND WELL**

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