



**HMC**  
EUROPE

Laboratory- and sterilisation equipment

## 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

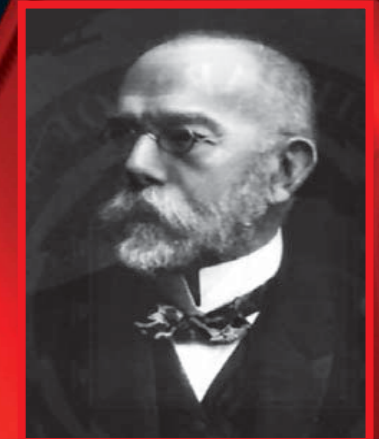
Only sufficient holding times can assure sterilization success. In microbiological laboratories, the sterilization time is usually 15 to 20 minutes. It should be noted that liquids and culture media take much longer to reach the required sterilization temperature due to delayed heat conduction.

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)

...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!

**STERILIZING  
SIMPLY  
AND WELL**

**HMC  
EUROPE**

## State of the art

All HMT steam sterilizers are manufactured at a modern plant using state-of-the-art processes and technologies. All units comply with the Pressure Equipment Directive and all applicable European standards and regulations and bear the CE mark.

## Automatic program sequence

While in the case of HMT 232 X, one out of four different sterilization times can be selected, the units of the FA class offer preselected programs with an automatic, microprocessor-controlled program sequence, including an automatic feed water out of the reservoir.



## Safety included

All HMT steam sterilizers are equipped with an overpressure protection switch, a safety valve and an overheating protection switch. The door is locked manually by a turning bolt.

As a matter of course, the unit is equipped with a water-level monitor for the reservoir and the sterilization chamber, using a visible and audible warning message in case of low water.



# HMT SERIES



# TECHNICAL DATA



Chamber capacity		HMT 232 X	HMT 230 FA	HMT 260 FA
Model				
Round laboratory flasks	50 ml	24	23	46
Round laboratory flasks	100 ml	18	15	30
Round laboratory flasks	250 ml	9	11	15
Erlenmeyer flasks	250 ml	9	11	15
Erlenmeyer flasks	500 ml	-	3	6
Square laboratory flasks	500 ml	-	4	8

Tray frames		Order No.
HMT 232 X	for various insertion heights, trays included	52009
HMT 230 FA		52014
HMT 260 FA		52019
Set HMT 232 X	for various insertion heights, trays included	52023
Set HMT 230 FA/MA		52024
Set HMT 260 FA/MA		52025

Technical data				
Model		HMT 232 X	HMT 230 FA	HMT 260 FA
Chamber volume	litres	16	16	24
Chamber dimensions	Ø x H mm	230 x 410	230 x 410	260 x 450
External dimension	W x D x H mm	500 x 406 x 537	522 x 410 x 594	533 x 442 x 655
Working temperature	°C	121° - 134°	121° - 134°	121° - 134°
Pre-selection of sterilisation time	min	4, 15, 30	Automatic program sequence incl. feed water out of reservoir, 9 preselected programs, microprocessor-controlled	
Power	kW	1,4	1,9	2,4
Power supply		AC 220 V / 240 V		
Weight	kg	31	48	53
Safety marks		CE		
Safety features		Overheating protection switch, safety valve, overpressure protection switch	Overpressure protection switch, safety valve, overheating protection switch, lock, water-level monitor for reservoir and sterilization chamber	
Order No.		22001	22004	22005

Trays		Order No.
HMT 232 X		52008
HMT 230 FA/MA		52013
HMT 260 FA/MA		52018

Sterilisation box			
		Dimensions W x D x H	Order No.
HMT 232 X	Insert with lid, side panels with boring that can be closed	183 x 135 x 345	52007
HMT 230 FA/MA		183 x 135 x 345	52012
HMT 260 FA/MA		228 x 140 x 375	52017

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

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