MACS
Machine Autoclave Cutting Sterilization

MACS 300

Conquering the challenges of hazardous waste.

MACS autoclaves provide an outstanding economic solution by efficiently neutralizing germs, viruses, and bacteria on-site, significantly reducing hazardous waste transport costs and related CO_2 emissions. The system also effectively prevents cross-contamination and enables the efficient treatment of liquids and food. These benefits support a circular economy and promote sustainable resource utilization.

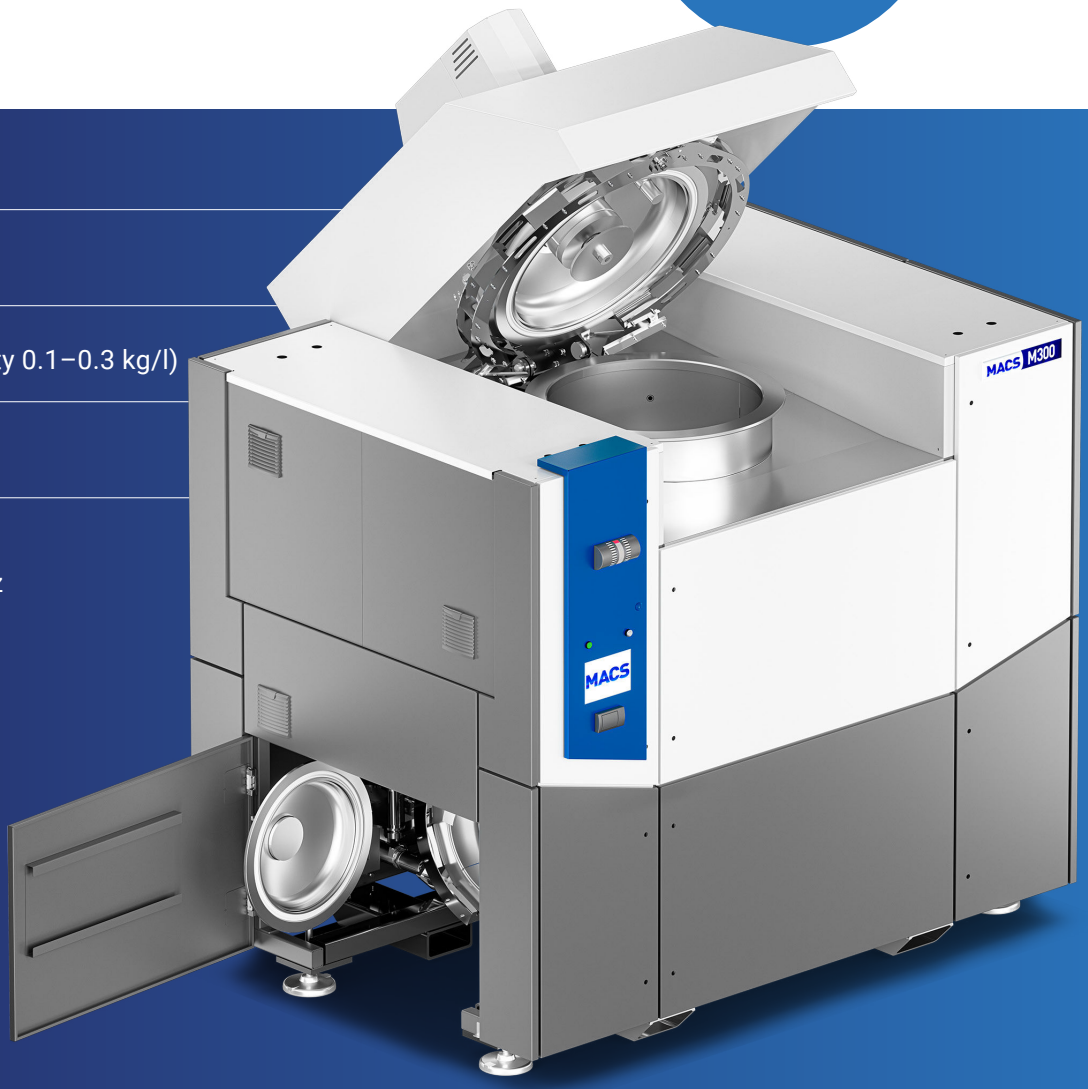
MEETS
ROBERT KOCH INSTITUTE
REQUIREMENTS

Volume filling hopper:
350 liters

Process capacity per cycle*:
300 liters / 30–90 kg (density 0.1–0.3 kg/l)

Height/ width/ depth:
2.850 / 2.800 / 1.850 mm

Power consumption:
Unit-average 25 kW
3 phase, 400 V, 50 Hz–60 Hz



Effectiveness
Achieves up to 97 % waste volume reduction. The best sterilisation to energy consumption ratio in its class.

Usability
Ergonomic and safe, standard utility connections, remote support capabilities.

Sustainability
Through its chemical-free operation, energy efficiency, volume reduction, emission-free performance.

Reliability
Consistent operation, security during power outages, independent from external services.

Financial benefits
Rapid installation and setup, reduction of hazardous waste handling fees, low lifetime operating costs.

*Standard process time=60min.

MACS 300 KEY DATA

MACS
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Cutting Sterilization

MASCHINE	
Volume Filling Hopper	350 l
Volume Autoclave	245 l
Noise level	<65 dB
Steam generator	51/80 kW*
Condensate/air	Oil-free air compressor, all exhaust air flows through a 0.2 micron HEPA filter
Shredder	Electric motors, each with reverse rotation, blades made of Hardox© steel
Frame	Steel
Casing/Bodywork	Steel optional: customizable machine´s colour

PROCESS	
Process capacity per cycle	300 l / 30–90 kg (density 0,1–0,3 kg/l)
Process	Pre-vacuum plus plateau phase 10 alternatively 20 mins., temp. 136°C, pressure up to 4,5 bar
Process capacity/24 h (18 cycles, as theoretical maximum)	5.400 l / 1.620 kg
Processtime/Cycle	Standard 60 min
Shredding time	6–10 minutes depending on the waste composition
Biological inactivation	SAL=10^{-24} standard program, SAL=10^{-48} (20 minutes program)
Waste reduction	Up to 97% on volume, depending on type of waste and waste density

LIFE CYCLE ASSESSMENT	
Volume reduction potential/year**	178.704 l
CO_2 reduction potential/600km	7.506 t
CO_2 Emissions/Year	Zero

DIMENSIONS*	
Height/ width/ depth (mm):	2.850 / 2.800 / 1.850
Height machine opened:	3.450 mm
Weight net:	4.400 kg

CONNECTIONS	
Water inlet	$^3/_4$"
Water outlet	2"
Water quality/water pressure	Potable water, min 4.5 bar (booster pump optional)
Power	3 phase, 400 V, 50 Hz–60 Hz
LAN/WLAN	Connection to local network possible

CONSUMPTION	
Water consumption	Up to 180 liters/cycle
Power consumption	Unit-average 25 kW, peak 35 kW

DOCUMENTATION (INTEGRATED ON BOARD PRINTER)
Pressure in bar, temperature, time, cycle number, every minute during plateau phase
USB Data pass, step documentation on SD Card, connection to local network possible (LAN/WLAN)

LOCATION	
Space requirement	Ca. 29 m². Mindestabstand zur Wand: 0,5 m – Türseite – min 1,20 m
Ventilation	6 air changes per hour recomended
Equipment load on the floor	Approx. 882 kg/m2

* May change due to design changes or customer requirements.
** Calculated on the MACS Liquid Program.

SAFETY- AND EMERGENCY FEATURES

- Automatic leak test before a cycle starts, will not start if leak is discovered
- Fast stop and emergency program in case of process is interrupted during the cycle period
- Sterilization with hot steam is guaranteed every time before the lid is opened
- Gaseous discharges are filtered with a 0,2 µ microbiological filtering system integrated water softener and steam generator
- Shredder and its parts are sterilized with saturated steam every cycle
- Programmable daily cleaning cycles
- Liquids are only released into the sewer after sterilization and confirmation that the cycle performed correctly. Cycle continues where it stopped
- Technicians don't need an education background

PROCESSABLE TYPES OF WASTE

- sharps (WHO-sharps)
- metallic packing, but no pressure containers VOC's
- blood bags and blood preserves (WHO-pathological waste)
- VOC's Volatile and semi-volatile organic compounds, chemotherapeutic wastes and radiological wastes should not be treated in a MACS
- wastes whose collection and disposal are subject to special requirements in order to prevent infection (i.e. dressings, plaster casts, linen, disposable clothing, diapers (WHO non-risk or „general" health-care waste)

MACS®

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