

# INTEGRA



**MEDIACLAVE** Fast, reproducible and safe media sterilization

# MEDIACLAVE – fast, reproducible and safe media sterilization

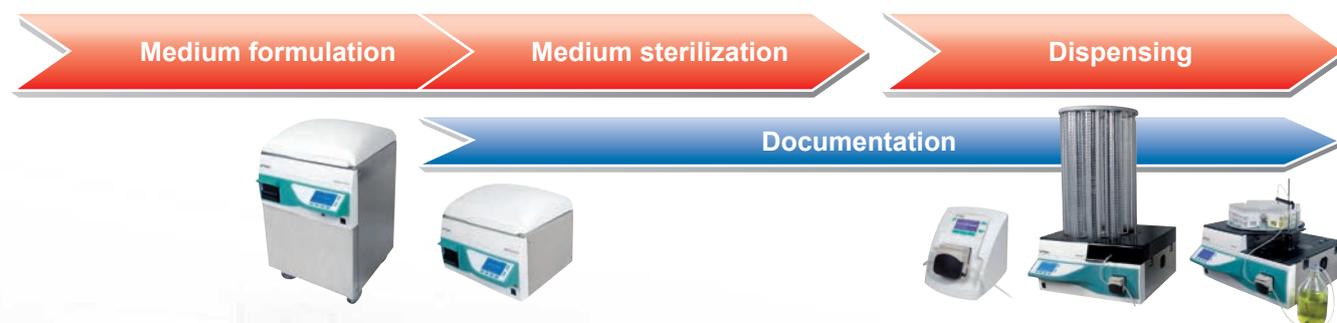
High quality medium for the cultivation of bacteria is at the core of various routine applications in today's laboratories. Hence, many downstream tasks and results directly depend on the performance of media preparation. Furthermore, an efficient process flow is important. This not only allows laboratories to save labour costs, but also frees manpower for less repetitive tasks.

The MEDIACLAVE product range is designed to approach these needs. It allows the rapid and gentle sterilization of 1 – 30 L culture medium. Precise controlling and monitoring of temperature, time and pressure during the sterilization process

guarantee constant high quality. The intuitive graphical user interface and the simple programming make it very easy for everyone to operate MEDIACLAVE.

MEDIACLAVE allows you to be flexible – culture medium of high quality is rapidly available whenever needed. This minimises the needed storage room, eliminates the management of shelf life time and therefore guarantees constant high medium quality.

## Process for media preparation:



# Medium formulation

MEDIACLAVE is quickly set up. Insert the cuvette (container for media), fill in the coupling water (water jacket between the cuvette and the vessel for efficient heat transfer) and you are ready to prepare your culture medium.

Culture medium can be suspended and dissolved directly within MEDIACLAVE. The strong magnetic stirrer guarantees homogeneous mixing within the vessel and prevents coagulation. Alternatively, culture medium can be dissolved and pre-swelled using the WATER BATH operation mode prior to sterilization.

The intuitive, multilingual graphical user interface makes it very easy for everyone to use MEDIACLAVE – no special training of the staff is required.

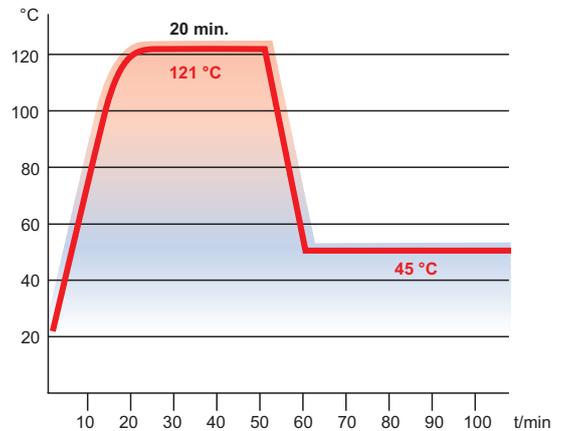
Up to 50 programs with user-defined parameter settings such as sterilization temperature, sterilization time or dispensing temperature can be saved and recalled.



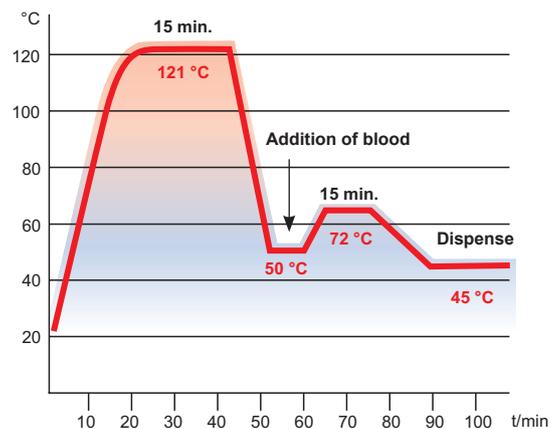
## Operation modes:

Two main operation modes for media preparation, plus two extra modes can be selected and the parameters set to your needs:

- 1. STANDARD mode:** For the preparation of standard and highly sensitive culture media. Sterilization temperature/time and dispensing temperature can be set.
- 2. CHOCOLATE AGAR mode:** A special two-step program that allows the preparation of complex media. After the first sterilization phase, supplement, e.g. blood, can be added through the adding port. Subsequently, a second heating phase will be performed.
- 3. WATER BATH mode:** For pre-swelling culture media prior to sterilization within the temperature range 30 – 80 °C. In combination with an autoclave cuvette (only MEDIACLAVE 10), liquids in glassware can be thermostatted.
- 4. AUTOCLAVE mode (MEDIACLAVE 10 only):** MEDIACLAVE 10, together with an optional autoclave kit can be used as a bench top autoclave for the sterilization of small amounts of culture media in glassware such as Erlenmeyer flasks or test tubes.

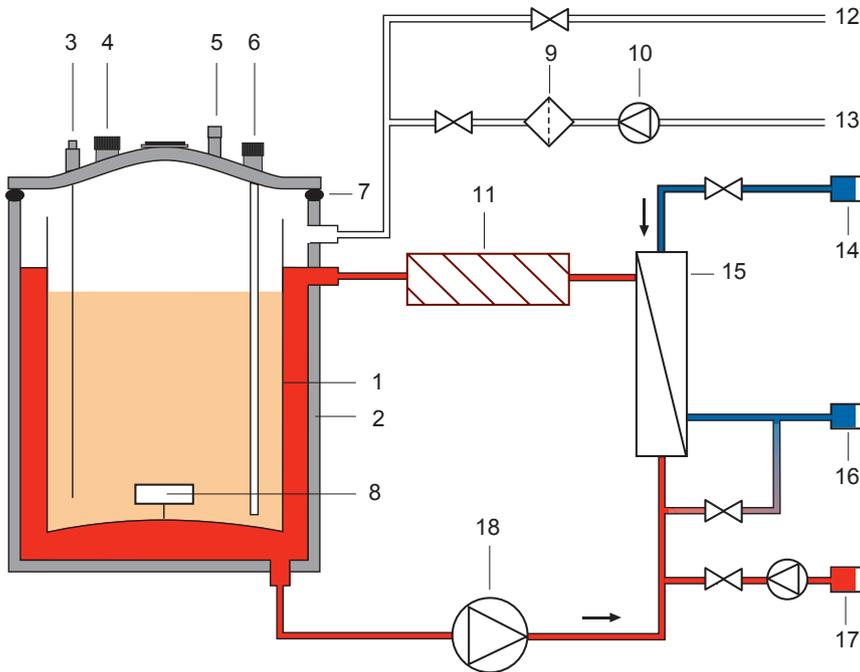


*Standard mode: Heating up, sterilization and cooling down to dispensing temperature.*



*Chocolate Agar mode: After the first sterilization phase, blood is added and again shortly heated up before dispensing.*

# Medium sterilization



## MEDIACLAVE working principle

- 1 Media cuvette
  - 2 Sterilization vessel
  - 3 Temperature probe
  - 4 Adding port
  - 5 Overpressure safety valve
  - 6 Dispense port with decanting tubing
  - 7 Lid seal
  - 8 Magnetic stirrer bar
  - 9 Sterile filter
  - 10 Support pressure pump
  - 11 Flow heater
  - 12 Deaeration outlet
  - 13 Air inlet
  - 14 Quick connection for cooling water inlet
  - 15 Heat exchanger
  - 16 Quick connection for water outlet
  - 17 Quick connection for coupling water inlet (MEDIACLAVE 30 only)
  - 18 Circulation pump
- ⊗ Valve

MEDIACLAVE guarantees gentle and rapid sterilization of standard and highly sensitive culture media. An efficient heating and cooling system, together with homogenous mixing, minimise thermal stress during the process and therefore guarantee maximum media fertility.

### High Operational Safety

An automatic tightness check at the beginning of each sterilization cycle prevents the instrument from starting if, for example, the lid seal of the vessel is not inserted properly – avoiding incomplete sterilization and subsequent media rejection. Furthermore, MEDIACLAVE is equipped with several independent monitoring systems for pressure and temperature, guaranteeing highest safety standards for the user and the working environment. The vessel lid is equipped with an autonomous overpressure safety valve and a burst disc in case all other electronic monitoring systems fail.

### Fast Heating

Powerful heating elements permit fast media processing. This minimises thermal stress and ensures high fertility of your culture media. Pressure and temperature controlled deaeration guarantees saturated steam in the vessel – an absolute must for complete sterilization.

### Reliable Sterilization

The large and strong magnetic stirrer with adjustable speed and reversing rotation direction ensures homogenous media preparation over a wide viscosity range. A Pt-1000 temperature probe and microprocessor control of all relevant process parameters allow reliable and complete sterilization of culture media.

### Rapid Cooling

Rapid cooling is enabled by an efficient plate heat exchanger. The spatial separation of the cooling water system and the sterilization chamber makes it virtually impossible that culture media will get contaminated by cooling water. The built-in support pressure system prevents a delay in boiling during the rapid cool down phase and thereby allows an extraordinary fast and gentle cooling.



# Dispensing of the sterilized media

## Easy Dispensing

The wide adding port facilitates fast and safe addition of supplements such as antibiotics, blood or growth factors prior to dispensing. The automatic in-process sterilization of the dispense port eliminates the risk of medium contamination during dispensing.

The vessel and the dispensing system of the MEDIACLAVE were designed to avoid dead volume, allowing laboratories to save costs due to maximal medium yield.

The MEDIACLAVE can be quickly and conveniently connected to the dispensing tubing of the automated Petri dish filler MEDIAJET, allowing the dispensing of agar media into up to 540 Petri dishes at the touch of a button.



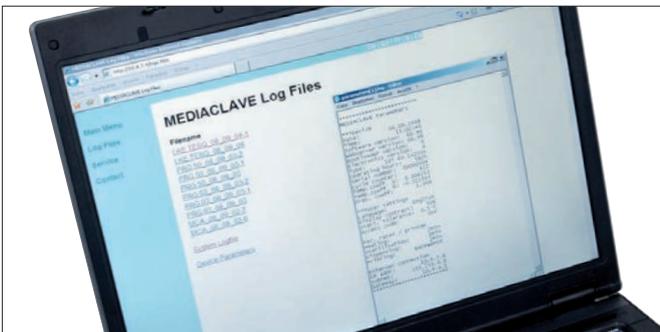
In addition, the peristaltic pump DOSE IT can be used to fill containers of more unusual volumes or shapes, e.g. quadrangular Petri dishes, bottles or flasks.

Alternatively, large containers such as bottles can be filled by pressure dispensing. The optionally available pressure dispensing kit, including a pinch valve box and a foot switch, allows the direct and fast dispensing of medium by automatically building up pressure inside the sterilization chamber.

# Documentation of the media preparation process

MEDIACLAVE provides all necessary tools to support individual needs in process documentation and validation. An integrated web server for direct connectivity via Ethernet allows remote monitoring of the sterilization process and instrument parameters. Moreover, it allows the durable electronic storage of process data, circumventing the need to archive printouts. A digital signature according to FDA (21 CFR Part 11) / EU (GMP Annex 11) can be automatically added to the electronic process file.

In addition, MEDIACLAVE enables the electronic storage of all process data to a USB flash drive. All process log files are saved automatically if a flash drive is connected to the MEDIACLAVE USB port. If equipped with the optionally available dot matrix printer, high quality printouts insusceptible to fading can be archived. Printout intervals and parameters are individually adjustable for all process phases and hence allow laboratories to reduce paper consumption and operation costs. Alternatively, a standard external printer can be connected directly via the serial interface.



Web server



USB port



Dot matrix printer

# Cleaning and maintenance of MEDIACLAVE



MEDIACLAVE is designed to keep maintenance easy. The absence of any heating element within the sterilization vessel makes the cleaning of the vessel easy.

The integrated CLEANING procedure automatically sterilizes the vessel, valves and the tubing inside MEDIACLAVE. Hot, sterile coupling water is drained at the process end; dissolving and removing unwanted agar residues in the system effectively. This allows a complete decontamination of all vulnerable parts of the instrument and thus ensures the best possible environment for sterile media preparation.

An automatic indication of the next service to be due prevents unnecessary downtime, thus maximising the productivity of the whole media kitchen.



## Technical Data

Capacity	MEDIACLAVE 10	MEDIACLAVE 30
Stainless steel cuvette	1 – 10 L	3 – 30 L
Autoclave cuvette (Ø, H)	254 mm, 203 mm	-
<b>Temperature range</b>		
Sterilization	30 °C – 122 °C	30 °C – 122 °C
Dispensing	20 °C – 80 °C	20 °C – 80 °C
Water bath	30 °C – 80 °C	30 °C – 80 °C
Max. temperature deviation	+1.0 °C/-0.2 °C	+1.0 °C/-0.2 °C
<b>Stirrer speed</b>		
Selectable	50 – 200 rpm, reversing direction	50 – 200 rpm, reversing direction
<b>Utilities</b>		
Heating Capacity	Max. 3 kW	Max. 9 kW
Interfaces	2 x RS232, Ethernet, USB port, AUX contact, footswitch, ext. pinch valve	2 x RS232, Ethernet, USB port, AUX contact, footswitch, ext. pinch valve
Cooling water connections	¾" thread	¾" thread
<b>Electricity supply</b>		
All MEDIACLAVE 10 instruments	200 – 240 V 50/60 Hz, 16 A	-
MEDIACLAVE 30, US/JP (136 050)	-	200-208 V 3~/PE, 50/60 Hz, 30 A
MEDIACLAVE 30, EU (136 055)	-	390-400 V 3~/N/PE, 50/60 Hz, 16 A
<b>Dimensions and weight</b>		
Basic Device (H x W x D)	480 mm x 550 mm x 640 mm	1040 mm x 550 mm x 640 mm
Weight	57 kg	85 kg

### Approvals

for MEDIACLAVE 10 | MEDIACLAVE 30



Swiss made



C NRTL US

# Ordering information

Instruments		Plug	Part No.
<b>MEDIACLAVE 10</b> 	10 Litres Media Preparator complete with cuvette, lid seal, magnetic stirrer, decanting tubing, fitting for dispensing tubing, integrated printer and printer splash guard (200-240 V, 50/60 Hz)	EU (CEE 7/7)	136 000
		US (NEMA L6-30P)	136 010
		no plug	136 020
<b>MEDIACLAVE 10</b> without printer 	10 Litres Media Preparator complete with cuvette, lid seal, magnetic stirrer, decanting tubing and fitting for dispensing tubing (200-240 V, 50/60 Hz)	EU (CEE 7/7)	136 005
		US (NEMA L6-30P)	136 015
		no plug	136 025
<b>MEDIACLAVE 30</b> 	30 Litres Media Preparator complete with cuvette, lid seal, magnetic stirrer, decanting tubing, fitting for dispensing tubing, integrated printer and printer splash guard (Without plug)	3 x 200-208 V 50/60 Hz (US, JP)	136 050
		3 x 390-400 V 50/60 Hz (EU)	136 055
Accessories		MEDIACLAVE	Part No.
Stainless steel	for medium sterilization	10	136 030
cuvette	for medium sterilization, incl. stainless steel guide tube (length 311 mm) for temperature probe	30	136 060
Autoclave kit	for autoclaving/thermostating liquids in containers, incl. autoclave cuvette, stainless steel with grid insert and flexible temperature probe	10	136 070
Magnetic stirrer bar	for homogeneous medium mixing within the cuvette	10	132 130
Magnetic stirrer bar with paddle	for MEDIACLAVE 30 or homogeneous stirring of high viscosity agar media within MEDIACLAVE 10	10 + 30	136 075
Decanting tubing	for insertion into the sterilization chamber/cuvette for dispensing, incl. silicone tubing, stainless steel nozzle and securing nut	10	136 034
	for insertion into the sterilization chamber/cuvette for dispensing, incl. rigid stainless steel tube (length 613 mm), silicone tubing and securing nut	30	136 061
Fitting for dispensing tubing	for connecting tubing (inner diameter 6 mm) to dispense port, incl. stainless dispense port fitting and spring	10 + 30	136 035
Printer splash guard	for protecting the integrated printer from splashes	10 + 30	136 040
Tubing connector for adding port	for adding large volumes of supplements through the adding port using a silicone tubing (inner diameter 6 mm)	10 + 30	136 049
Injection lid	for sterile injection of supplements through the adding port, incl. cap, punched disc and septum membrane (silicone/PTFE)	10 + 30	136 247
Pressure dispensing kit	for direct pressure dispensing, incl. pinch valve box, foot switch, silicone tubing and stainless steel dispensing tube	10 + 30	136 064
Dispensing tube	for pressure dispensing, length 10 cm, stainless steel, one end dented	10 + 30	171 056
Foot switch w. connecting cable	for pressure dispensing, to trigger the pinch valve	10 + 30	143 200
Volume measuring stick	for convenient measurement of the product volume in the cuvette	30	136 565
Consumables		MEDIACLAVE	Part No.
Lid seal	for sealing the vessel lid, silicone	10 + 30	135 860
Septum membrane	for injection lid, silicone/PTFE, self-resealing, 10-pack	10 + 30	136 047
Paper rolls	for integrated dot matrix printer, 10-pack	10 + 30	136 038
Ink ribbon	for integrated dot matrix printer	10 + 30	136 901
Silicone tubing	for pressure dispensing, length 25 m (bulk roll), inner diameter 6 mm, autoclavable	10 + 30	171 036

See product pictures on [www.integra-biosciences.com](http://www.integra-biosciences.com)



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