

Benchtop autoclaves with prevacuums and drying

AHS-B Series CLASSIC LINE

Technical information



Why choose RAYPA?

Expert manufacturer, original design, global brand



With half a century of experience, we have a long list of satisfied customers around the world. Currently, we export 85% of our annual turnover and have a stable network of distributors with presence in over 100 countries.



EFFICIENT TECHNICAL SERVICE

Our team of highly qualified technicians and engineers is expert in our products. If you experience a technical issue, it will be our priority to rectify it. When you purchase a RAYPA unit, you're guaranteed top-level support and technical assistance.



EXPERT MANUFACTURER

After more than 45 years in the industry, RAYPA is a global leader in the manufacture of laboratory autoclaves. Each of our autoclaves is designed and manufactured entirely within our modern facility equipped with the latest technology.

†∔†

FULL AND CUSTOMIZABLE RANGE

We offer an extensive portfolio of laboratory autoclaves to cover multiple applications and market segments. Discover the combination of autoclave model and accessories that best fits your needs within our 11 series and 35 available models.



INNOVATION AND QUALITY

Our products feature advanced technology, ongoing innovation, superior construction quality, and are designed for a long service life. Our technical and engineering staff works tirelessly every day to optimize our products and exceed our customers' expectations.



Our team of specialists assesses each project and provides guidance to clients on the option that best suits their requirements. After the sale, we offer training on the use and recommended maintenance of each unit to ensure its optimal operation and extend its lifespan.

Benchtop autoclaves with prevacuums and drying

The AHS-B Series benchtop autoclaves with front-loading access cover all laboratory sterilization needs in many industries and research facilities with the aim of increasing the productivity of the laboratory. The great chamber capacity, the integrated independent steam generator, the touchscreen display, the independent clean water tank and waste water tank, the initial prevacuum pulses and the final vacuum drying result in an excellent autoclave to perform from the simplest to the most demanding applications.

RECOMMENDED APPLICATIONS





MAIN FEATURES

EXCELLENT PERFORMANCE

AHS-B Series autoclaves offer excellent performance for various sterilization procedures. They are equipped with an independent integrated steam generator, a vacuum pump and a heating jacket to guarantee the correct penetration of steam in all types of loads and completely dry solid objects.

EASY INSTALLATION AND USE

Every AHS-B Series autoclave is a plug and play equipment that does not need dedicated installation connections. They are equipped with a 5" color touchscreen and 50 programs, include an independent clean water tank that automatically feeds the steam generator and optional upgrade for water feeding directly from the mains. The discharge is sent to a manually drained waste water tank.

MULTIPLE TYPES OF STERILIZATION CYCLES

Several options available to perform solids or liquids sterilizations. Programmable parameters: automatic preheating, programmed start, initial pre-vacuum pulses, final vacuum drying duration and optional flexible temperature probe for liquids sterilization.

SAFETY FIRST

AHS-B Series autoclaves are equipped with several features to ensure the safety of the operators. These include safety thermostats, water level detectors, an open door detection system and an independent pneumatic safety system that locks the main door while there is positive pressure inside the sterilization chamber.

ADVANTAGES



OPERATING PRINCIPLE

AHS-B Series autoclaves provide a solution for the multiple sterilization needs of any laboratory, including wrapped and unwrapped solids, textile loads, porous and hollow objects, plastics, metal utensils, laboratory waste bags, liquids, culture media, glassware and other laboratory items. The load has to be placed into the vessel's trays or basket and, after manually filling the independent clean water tank with purified water, the equipment starts to create the initial prevacuum, automatically feeds water to the independent integrated steam generator, generating saturated steam that is directly injected into the sterilization chamber until the set combination of sterilization time and sterilization temperature is reached.



OPERATION OF A STERILIZATION CYCLE FOR SOLIDS

PREHEATING PHASE

• In this initial step, the user has the option to set a preheating temperature of up to 70°C to shorten the duration of the sterilization cycle.

PREVACUUM PHASE

• In this phase, the vacuum pump of the equipment mechanically removes air from the chamber and through a single or multiple vacuum pulses of -0.75 Bargs. This allows the steam to penetrate load objects of complex geometries that couldn't otherwise be reached with a simple displacement of the air by gravity.

HEATING PHASE

• After completing the prevacuum phase, the powerful independent steam generator assembled outside the sterilization chamber heats up dramatically and injects saturated steam throughout the chamber.

STERILIZATION PHASE

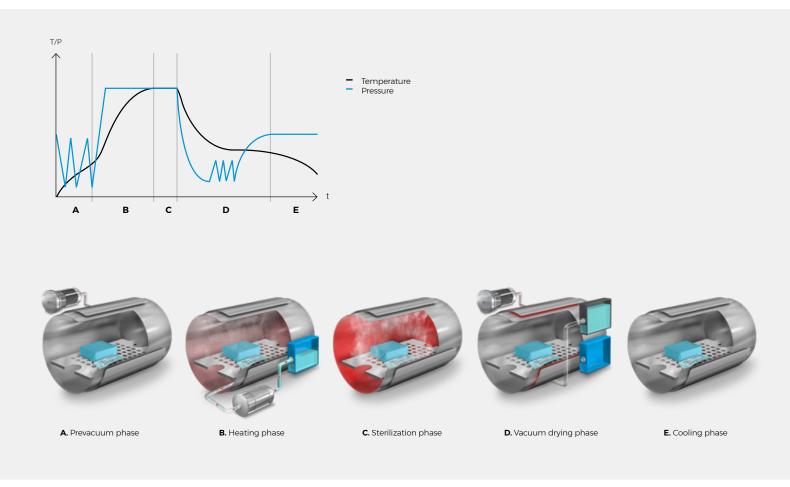
- Upon reaching the set sterilization temperature inside the chamber, the sterilization phase begins, accurately sustaining the temperature throughout the duration of this phase.
- This crucial step is controlled by a PT-100 Class A temperature probe located within the chamber. As an option for liquids sterilization processes, this phase can be regulated by a PT-100 Class A flexible temperature probe located inside a sample.

VACUUM DRYING PHASE

• Once the sterilization phase is finished, only for the solids programs, vacuum drying starts, where multiple vacuum pulses occur while the heating jacket is turned on, completely drying the load.

COOLING PHASE

• Once the vacuum drying phase is completed, natural cooling begins and an acoustic beep will sound when a safe temperature is reached that allows the chamber to be opened.



PREDEFINED PROGRAMS

Program No.	Program name	Prevacuum pulses	Sterilization temperature °C	Sterilization time min	Drying time min	Program mode	Flexible probe regulation
P1	BD	3	134	4'	4'	Solids	-
P2	Vacuum	1	-	-	-	Solids	-
P3	Porous-134	3	134	4'	15'	Solids	-
P4	Prion-134	3	134	18'	20'	Solids	-
P5	Porous-121	3	121	20'	15'	Solids	-
P6	Hollow-134	3	134	4'	10'	Solids	-
P7	Hollow-121	3	121	20′	10'	Solids	-
P8	Wrapped-134	1	134	7'	20'	Solids	-
P9	Wrapped-121	1	121	20′	20'	Solids	-
P10	Solids-134	1	134	4'	10'	Solids	-
P11	Solids-121	1	121	20′	10'	Solids	-
P12	Flash-134	1	134	3'	1'	Solids	-
P13	Liquid	1	121	30'	-	Liquids	-
P14	Liquid probe	1	121	15'	-	Liquids	Yes

The AHS-B Series autoclaves have 50 programs, from P1 to P50, and the first fourteen are predefined and protected.

The rest of the programs, from P4 to P9, can be edited by adjusting the following parameters:

- Number of prevacuum pulses.
- · Sterilization temperature.
- Sterilization time.
- Final drying time.
- · Sterilization mode (solids or liquids).
- Temperature regulation of the sterilization cycle can be done through the chamber temperature probe or through the combined use of the chamber probe and the flexible probe.

DIGITAL MICROPROCESSOR WITH TOUCHSCREEN

Digital microprocessor with a 5" TFT - LCD touchscreen for an easy parameters selection.

During the execution of a sterilization cycle, key parameters such as phase, temperature, pressure, alerts and errors are displayed. At the end of the cycle, the graphical results can be displayed.



LOADING CAPACITIES



ISO BOTTLES

		250mL (Ø85 x 143mm)		500mL (Ø105 x 183mm)		1000mL (Ø131 x 230mm)			2000mL (Ø166 x 280mm)				
Autoclave model	Usable volume L	Total baskets	Units / basket	Total units	Total baskets	Units / basket	Total units	Total baskets	Units / basket	Total units	Total baskets	Units / basket	Total units
AH-21-B	21	1	8	8	1	4	4	0	0	0	0	0	0
AHS-50-B	50	1	14	14	1	8	8	1	5	5	1	2	2
AHS-75-B	75	1	26	26	1	15	15	1	8	8	1	3	3



		(250mL Ø70 x 143mi	m)	(500mL Ø80 x 185mr	n)	((1000mL Ø101 x 230m	m)	(0	2000mL Ø136 x 260m	m)
Autoclave model	Usable volume L	Total baskets	Units / basket	Total units	Total baskets	Units / basket	Total units	Total baskets	Units / basket	Total units	Total baskets	Units / basket	Total units
AH-21-B	21	1	8	8	1	8	8	0	0	0	0	0	0
AHS-50-B	50	2	20	40	1	14	14	1	8	8	1	5	5
AHS-75-B	75	2	32	64	1	26	26	1	15	15	1	8	8

The data contained within these tables, regarding load capacities, serves as a non-binding guide to assist you in the selection of the most appropriate autoclave model.

COMPONENTS SUPPLIED



AH-21-B

A. Stainless steel tray support for 5 trays.

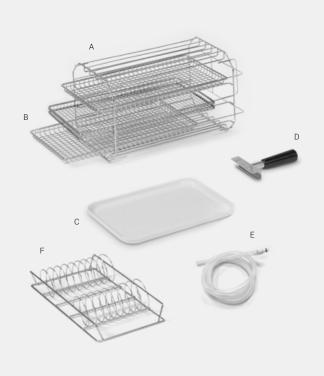
B. 3 stainless steel wire trays.

C. Auxiliary plastic tray for collecting condensed water after opening the door in cycles without final drying.

D. Holding clamp to move the trays.

E. Im silicone tubing with quick connection to drain the independent clean water tank and the independent waste water tank.

F. Stainless steel bag support.





AHS-50-B and AHS-75-B

- A. Stainless steel tray support for 5 trays.
- B. 2 stainless steel wire trays.

C. Auxiliary plastic tray for collecting condensed water after opening the door in cycles without final drying.

D. Holding clamp to move the trays.

E. Im silicone tubing with quick connection to drain the independent clean water tank and the independent waste water tank.

Stainless steel protecting grid for the heating elements.

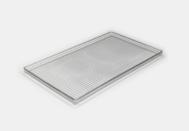




ACCESSORIES

STAINLESS STEEL WIRE TRAYS

References		BAH-21	BAH-50 B	BAH-75 B
External dimensions L x D mm		190 x 350	315 x 330	315 x 530
Maximum capacity for	22 L	5	-	-
autoclaves with the following	55 L	-	5	-
chamber volumes	79 L	-	-	5



STAINLESS STEEL WIRE HORIZONTAL BASKET

References		RB-AH-21	RB-AHS-50	RB-AHS-75
Dimensions	Exterior L x D x H mm	170 x 340 x 180	324 x 360 x 235	324 x 560 x 235
Dimensions	Interior L x D x H mm	160 x 330 x 170	314 x 350 x 225	314 x 550 x 225
Maximum capacity for	22 L	1	-	-
autoclaves with the following	55 L	-	1	-
chamber volumes	79 L	-	-	1



STAINLESS STEEL BAG HOLDER SUPPORT*

References		BAP-21	BAP-75
External dimensions L x D x H	l mm	400 x 180 x 80	300 x 180 x 95
Positions / support		20	20
Maximum capacity for	22 L	1	-
autoclaves with the following 55 L		-	4
chamber volumes	79 L	-	6

*Possibility of adapting the size of this accessory according to the needs of each customer. For more information, please contact us.

STAINLESS STEEL CONTAINERS WITH FILTER ON THE LID

	FC-215	FC-331	FC-338
Exterior L x D x H mm	285 x 185 x 65	300 x 300 x 110	300 x 300 x 85
Interior L x D x H mm	275 x 175 x 55	290 x 290 x 100	290 x 290 x 75
22 L	2	-	-
55 L	6	2	2
79 L	9	2	2
	Interior L x D x H mm 22 L 55 L	Exterior L x D x H mm 285 x 185 x 65 Interior L x D x H mm 275 x 175 x 55 22 L 2 55 L 6	Exterior L x D x H mm 285 x 185 x 65 300 x 300 x 110 Interior L x D x H mm 275 x 175 x 55 290 x 290 x 100 22 L 2 - 55 L 6 2





ACCESSORIES



FLEXIBLE TEMPERATURE PROBE PT-100 CLASS A

After installing this accessory, the temperature regulation of the sterilization cycle can be controlled by the main chamber temperature probe or both the main chamber temperature probe and the flexible temperature probe.

The temperature control by the flexible temperature probe is especially advantageous for processes involving the sterilization of large volumes of liquids, where the sterilization process is regulated by both the temperature achieved in the center of the liquid sample as well as the temperature achieved in the sterilization chamber. Furthermore, should the autoclave be opened at chamber temperatures higher than 80°C there is a risk of liquids boiling over which can be avoided if the temperature of the sample is controlled throughout the sterilization procedure.

Must be installed at our factory.

Ref. PT-2-B-AH

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EXTERNAL MATRIX PRINTER

Prints program number, cycle number, temperature, time, date and hour and error messages.

Selectable print frequency between 10 and 240 seconds.

Connection: RS-232.

Requires factory adaptation.

Ref. ITS

Consumables: PAPER-ITS for paper and 70945 for ink ribbon



EMBEDDED THERMAL PRINTER

Prints program number, cycle number, temperature, time, date and hour and error messages.

Selectable print frequency between 10 and 240 seconds.

Must be installed at our factory.

Ref. IT/TS

Consumable: PAPER-IT for paper

Download technical data sheet



SW8000 SOFTWARE

Communication software between the equipment and the PC that allows the visualization and recording in real time or after each cycle. Cycles can also be exported to Excel or printed.

Connection to PC via Ethernet connection, data can also be exported directly with a USB stick.

Ref. SW8000



Download technical data sheet

CABLE GLAND

Installation of a Ø2mm or Ø4mm cable gland to provide access to as many as eight external temperature probes for calibration and validation procedures.

Ref. CG2MM and CG4MM

Download technical data sheet

ACCESSORIES



BENCHTOP AUTOCLAVE TABLE

Stainless steel table with casters (with brakes on two of them).

Designed to accommodate any model of benchtop autoclave, including larger models.

Dimensions (LxDxH): 800x900x800mm. Ref. TABLE-AHS



TRANSPORT TROLLEY

Auxiliary trolley to aid in the loading and unloading of the autoclave. Made of chrome iron and plastic. The surface of each shelf is textured to prevent the load from moving. Rubber-coated casters to reduce noise and prevent floor wear. Dimensions (LxDxH): 730x490x700mm Ref. TR-TR



AUTOMATIC WATER FILLING KIT

Water pump to automate the supply of the tank with purified water. Compatible with installations that have a purified water network, a purified water tank or installations with a non-purified water network; in the latter case a water purifier (ECOPUR-500) and a purified water tank (TANK-KLL) will be required. Must be installed at our factory.

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Ref. KLL-21 and KLL-AHS

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ECO-EFFICIENT WATER PURIFIER

Direct flow eco-efficient water purifier without water accumulation capable of filtering 1,3L/min with LED display.

The installation of this accessory requires the joint installation of the external tank (TANK-KLL) and the automatic water filling system (KLL-AHS or KLL-21).

Ref. ECOPUR-500



PURIFIED WATER TANK

Alternative solution for the storage of up to 25L of purified water in the absence of a water network. Ref. TANK-KLL

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Download technical data sheet

ACCESSORIES



TEMPERATURE DATA LOGGER

Temperature recorder in AISI-316L stainless steel disk format with connection base and software.

Recommended for autoclave validation and for monitoring the internal temperature of vessels.

Available in various sizes.

Ref. BDL-DISK3618_CL



PACK OF STERILIZATION TAPE

Class 1 indicator for steam sterilization. The color change indicates that the materials have been processed, but this is not a guarantee of a correct sterilization. Additional methods such as biological indicators are required (EN ISO 11138).

Pack of 5 rolls of 50m x 19mm tape. **Ref. TEST-CT**



BOWIE DICK TEST PACK

Class B indicator printed with non-toxic and plasticized inks that checks the correct penetration of steam in porous loads.

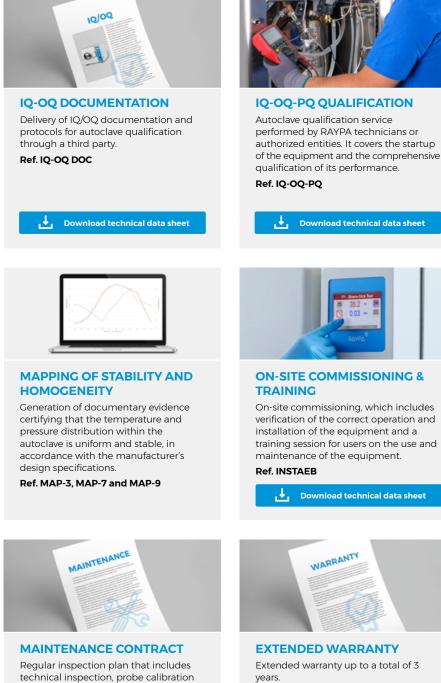
Box of 20 tests. Ref. TEST-BD

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SPECIFIC SERVICES



and compliance with the preventive **Ref. WE-CL** maintenance plan, in addition to tariff



CALIBRATION CERTIFICATE FOLLOWING ENAC TRACEABILITY STANDARDS

Unitary certification of proper equipment calibration and performance in compliance with international standards.

Ref. MAPEO-ENAC



a training session for users on the operation and maintenance of the equipment.

Ref. INSTAEB-REM





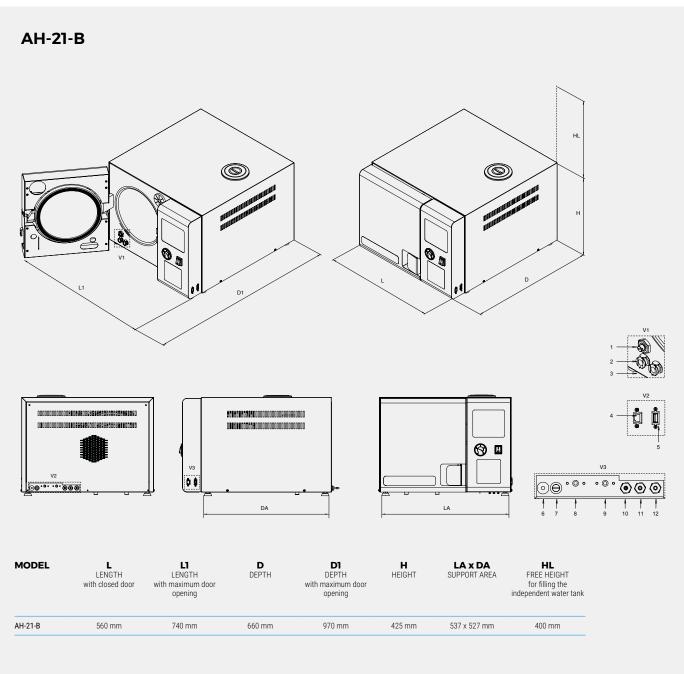
SET OF CONSUMABLES, SPARE PARTS AND ESSENTIAL COMPONENTS

Set of original spare parts, consumables and components, chosen specifically to adhere to each model's maintenance plan, intended to maximize equipment longevity and minimize downtime in the event of a malfunction.

discounts.

Ref. MANT-1.4 and MANT-1.5

TECHNICAL DRAWINGS

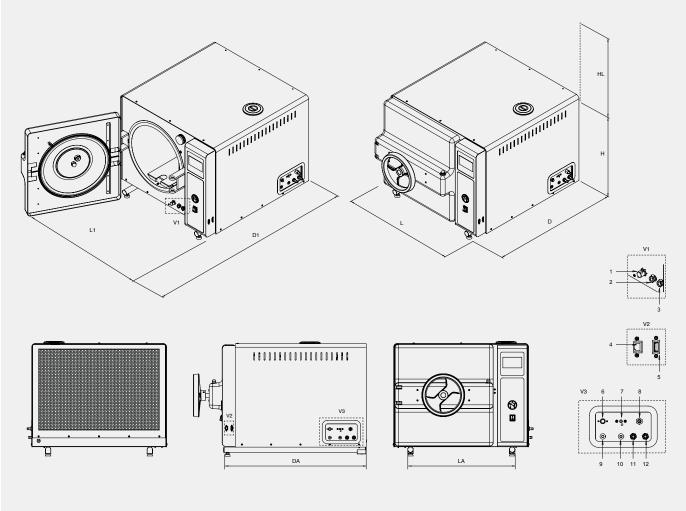


CONNECTIONS

r safety thermostat
afety thermostat
r feed inlet (optional)
ter tank overflow outlet
let
t

TECHNICAL DRAWINGS

AHS-50-B and AHS-75-B



MODELS	L LENGTH with closed door	L1 LENGTH with maximum door opening	D DEPTH	DEPTH with maximum door opening	H HEIGHT	LA X DA SUPPORT AREA	FREE HEIGHT for filling the independent water tank
AHS-50-B	805 mm	1240 mm	805 mm	1230 mm	650 mm	622 x 670 mm	400 mm
AHS-75-B	805 mm	1240 mm	1005 mm	1430 mm	650 mm	622 x 830 mm	400 mm

CONNECTIONS

1	Access to the drain filter and sterilization chamber drain outlet	7	Steam generator safety thermostat
2	Independent water tank drain outlet	8	Power cable
3	Independent waste water tank drain outlet	9	Mains fuse
4	Ethernet port	10	Mains fuse
5	USB port	11	Independent water tank overflow outlet
6	Heating jacket safety thermostat	12	Safety valve outlet

INSPECTED

TECHNICAL BRIEF

ailable m	odels		AH-21-B	AHS-50-B and AHS-75-B	
		Recommended setting	Healthcare, research and ir	ndustry laboratories	
•		Equipment placement	Benchto	р	
	eneral classification	Load direction	Frontal		
		Chamber profile	Round		
		Objects of complex geometries	++		
		Porous solids and wrapped loads	++		
T		Plastics and metal objects	++		
M RE	ecommended type of load	Glassware	++		
		Laboratory waste bags	++		
		Liquids and culture media	++		
		Steam generation method	Independent integrated	steam generator	
		Type of purge	Vacuum	ı	
y St	Sterilization technology features	Prevacuum pulses by vacuum pump	✓		
		Vacuum drying by heating jacket and vacuum pump	✓		
) Tr	ransfer of data	Ethernet & USB	✓		
Ba	atch printers	Integrated printer	0		
		Sterilization chamber volume	22 L	55 - 79 L	
		External building materials	Metallic & Als	51-304	
	Sterilization chamber and door specifications	Sterilization chamber material	AISI-316	L	
		Vacuum pump	Membrar	ne	
		Gasket material	Silicone rubber		
		Sterilization temperature min max.	105 - 134	°C	
 Տլ		Maximum pressure (above atmospheric pressure)	2,1 Bar]	
		Mechanism to open the door	Handle	Wheel	
		Direction in which the door opens	Frontal		
		Automatic locking with pressure	✓		
		Thermally insulated door	×		
		Screen display	TFT touchso	creen	
		Screen size	5"		
	ser interface and	Total number of available programs	50		
 m	nicroprocessor	User management with administrator hierarchy	~		
		Automatic microprocessor control	~		
		Timer start	×		
		Vacuum test	×		
sr.	pecial cycles and	Bowie-Dick test	×		
,	rocess optimization	Final vacuum drying (to completely dry solid loads)	×		
		Temperature regulation by flexible probe	0		
		Auto-preheating	~		
		Number of prevacuum pulses	1 - 3		
		Temperature of sterilization phase	105 - 134	°C	
		Duration of sterilization phase	1 - 250 m	iin	
A	djustable cycle parameters	Duration of drying phase	1 - 360 m		
		Temperature control by flexible probe	On/Off		
		Sterilization mode (solids or liquids)	×		
		Air inlet with bacteriological filter	~		
		Independent clean water tank capacity	6 L	10 L	
		Independent waste water tank capacity	2,6 L	6 L	
-) 01	ther specifications	Flexible temperature probe	0		
		Rubber feet	×		
		Pressure gauge	✓		
		Custom electrical features (115-230M V / 230-400T V)	0		
			_		

+: Recommended 🖌 : Included 0 : Optional

TECHNICAL DATA

Specifications			
References	AH-21-B	AHS-50-B	AHS-75-B
Total/usable volume of the chamber L	22/21	55/50	79/75
Usable dimensions of the chamber \emptyset max. x D mm	210 x 430	360 x 400	360 x 600
Volume of the built-in clean water tank L	б	10	10
Volume of the built-in waste water tank L	2,6	6	6
External dimensions L x D x H mm	560 x 660 x 425	805 x 805 x 650	805 x 1005 x 650
Maximum number of trays	5	5	5
Tray size L x D mm	190 x 350	315 x 330	315 x 530
Net weight Kg	65	114	132
Power W	2000	3600	3600
Standard voltage* V	230	230	230
Frequency Hz	50/60	50/60	50/60

*Other voltages and electrical configurations available on request.

Safety features

- Safety valve.
- · Safety thermostats with manual rearm for the heating jacket and the steam generator.
- · Pneumatic door blocking system while positive pressure exists inside the sterilization chamber.
- Open door sensor. Thermally insulated door.
- Water level detector in the independent integrated steam generator.
 Water level detector (min.- max.) in the independent clean water
- tank with overflow drainage.
- · Water level detector (max.) in the independent waste water tank.
- · Bacteriological filter for air inlet.
- Several visual and acoustic safety and warning alarms.

Regulations

All our AHS-B Series autoclaves are designed to comply with the strictest international directives and standards, including the following regulations

- · EN-61010-1 Safety requirements for electrical equipment for measurement, control and laboratory use. Part 1: General requirements.
- · EN-61010-2-040 Part 2-040: Requirements for laboratory autoclaves.
- EN-61326 Electrical equipment for measurement, control and laboratory use. EMC requirements.
- · AD 2000 Merkblatt Pressure vessels.
- 2014/35/EU Low voltage.
 2014/30/EU Electromagnetic compatibility.
- 2014/68/EU Pressure equipment.

General features

Adjustable sterilization temperature	105 - 134 °C
Adjustable sterilization time	1 - 250 min
Adjustable prevacuum pulses	1-3
Adjustable drying time	1 - 360 min
Max. pressure	2,1 Barg
Sterilization control system	Fully automatic microprocessor control by chamber temperature probe or flexible temperature probe
Air purge system	Mechanical displacement by vacuum pump
Heating system	Independent integrated steam generator
Vacuum drying system	Vacuum pump plus heating jacket
Prevacuum system	Vacuum pump
Sterilization chamber material	AISI-316L stainless steel
Gasket material	Silicone rubber
Connection to PC	Ethernet
Connection to printer	Integrated
Number of programs	50 (14 preset and 36 user free)
Programmable auto-start	Unlimited range
Screen type	5" TFT Touchscreen
Opening door mode	Front-loading swiveling door
Monitoring of sterilization parameters	Self-control of obtained values (T°, P $\&$ t) vs programmed values. Cycle is automatically interrupted if obtained values differ from programmed values
Pressure display	Pressure gauge on the control panel, digital display on screen, registry on software and printer tickets
Water management	Manual feed independent clean water tank that automatically feeds the independent integrated steam generator. Optional upgrade to fully automatic water feed directly from water network
Drainage system	Drainage connections for both drainage and overflow of the independent clean water tank, to drain the independent waste water tank and a screw to manually clean the drainage filter and drain the sterilization chamber
Feet	Feet with resistant rubber

MORE INFORMATION

> Watch video

🞍 Download the installation guide

in

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