RAYPA

Benchtop autoclaves without drying

AHS-N Series CLASSIC LINE

Technical information

Why choose RAYPA?

Expert manufacturer, original design, global brand

GLOBAL REACH

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.

COMPREHENSIVE CONSULTANCY

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 without drying

The AHS-N Series benchtop autoclaves with front-loading access cover the fundamental sterilization needs of general laboratories in many industries, educational institutions and research facilities with the aim of increasing the productivity of the laboratory.

A compact footprint together with the optimization of resources such as water, power and operating time results in an affordable and efficient solution to manage laboratory workload.

RECOMMENDED APPLICATIONS

- Liquids and culture media
- Glassware
- Plastics and metal objects
- Laboratory waste bags*

*For this application, the sterilization time should be extended, the chamber should not be fully loaded and chemical and/or biological tests should be used to validate the correct sterilization of the load.

AHS-N Series

MAIN FEATURES

ECONOMICAL AND ROBUST

AHS-N Series autoclaves are economical and robust autoclaves with excellent performance for general laboratory sterilization procedures. They can be used for both solid and liquid sterilization procedures. They also have limited consumption of valuable laboratory resources such as water, power or operator time.

A COMPACT FOOTPRINT THAT FITS ANYWHERE

AHS-N Series autoclaves, with chamber sizes from 22L to 79L, offer the same performance and manufacturing quality as a full-size vertical autoclave, all in a compact design that fits any workspace.

EASY INSTALLATION AND MAINTENANCE

Every AHS-N Series autoclave is a plug and play equipment that does not need dedicated installation connections. They simply need a power source and can work even without a connection to the drainage. All models include a manually fed independent water tank that feeds the sterilization chamber.

SAFETY FIRST

AHS-N Series autoclaves are equipped with several features to ensure the safety of the operators. These include an overpressure safety valve, a thermally insulated door, a safety thermostat, an open door detection system, and an independent pneumatic safety system that locks the main door while positive pressure exists inside the sterilization chamber.

ADVANTAGES

- Sterilization chamber and door made of high quality stainless steel grade AISI-316L extremely resistant to corrosion.
- Equipment built following all applicable European Union quality, regulatory and safety standards.
- Heating by powerful electric elements made of Incoloy® 825 assembled inside the sterilization chamber and shielded by a protective grid.
- Control by a PID microprocessor with 4 predefined and 6 editable programs, adjustable by time, temperature and type of sterilization cycle (agar mode and/or core probe control)*.
- Programmable auto-start.
- Temperature control by a PT-100 Class A temperature probe located within the sterilization chamber.
- Faster cooling phase in solids sterilization cycles through a steam release function at the end of the sterilization.
- Adjustable temperature holding at the end of the sterilization cycle between 40-80ºC (agar mode)*.
- Optional software for sterilization data management.
- Optional integrated or external printer *.
- Plug and play equipment, no plumbing required.

*These features are only offered with AHS-50-N and AHS-75-N models.

OPERATING PRINCIPLE

AHS-N Series autoclaves provide a solution for the multiple sterilization needs of general laboratories, including liquids, culture media, biological waste, contaminated media, instruments, glassware and other laboratory items.

The load has to be placed into the vessel's trays or basket and, after manually filling the independent water tank and the sterilization chamber with purified water, the equipment begins to heat up and purge until the set combination of sterilization time and sterilization temperature is reached.

AHS-N Series

OPERATION OF A STERILIZATION CYCLE FOR SOLIDS

HEATING PHASE

- In this initial step, the powerful heating elements assembled at the bottom of the sterilization chamber heat up dramatically, transferring energy to water to produce 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.

AHS-50-N and AHS-75-N

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.

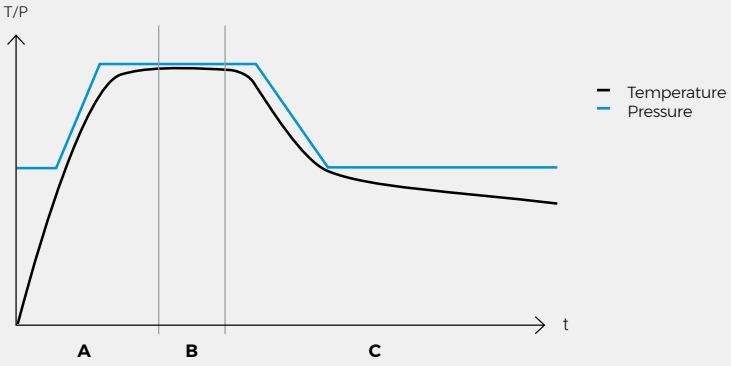
COOLING PHASE

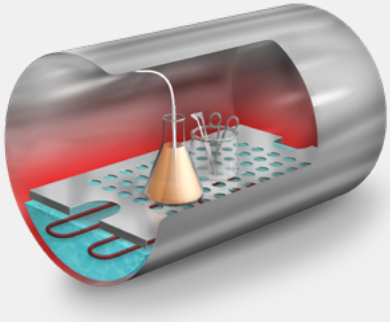
- Once the sterilization phase is complete, natural cooling begins, and the steam and water located inside the chamber around the electric heating elements will automatically return to the independent water tank. An acoustic beep will sound when a safe temperature is reached, allowing the chamber to be opened.

AHS-50-N and AHS-75-N

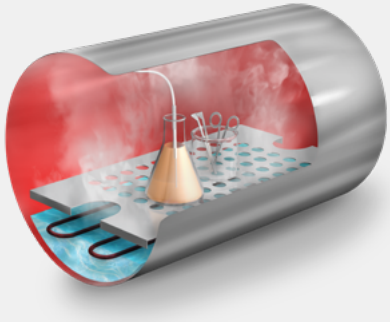
In solids programs, the discharge can be manually forced through a push-button to reduce the duration of the cooling phase.

If agar mode is on, the equipment will hold the preprogrammed temperature indefinitely, selectable between 40 and 80°C.

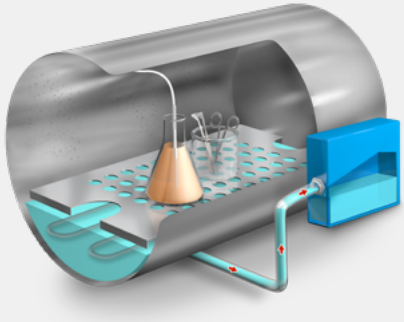




A. Heating phase



B. Sterilization phase



C. Cooling phase

CONTROL PANELS

AH-21-N2

MULTIPLE PILOT LIGHTS

- Sterilization cycle is ongoing.
- Delay start function is ongoing.
- Preprogrammed sterilization time is ongoing.
- Door is open.
- Safety thermostat is activated.

4 MODES TO REGULATE THE STERILIZATION CYCLE

- Indefinitely at a set temperature.
- Indefinitely at a set temperature after an initial delay.
- During a finite period of time at a set temperature.
- During a finite period of time at a set temperature after an initial delay.

DIGITAL MICROPROCESSOR AND COMPACT SCREEN

- The screen shows current chamber temperature, sterilization parameters and error messages.
- Digital microprocessor and several intuitive push-buttons to set up the sterilization cycle parameters.

STERILIZATION WATER MANAGEMENT

- A manual valve is used to supply water to the sterilization chamber from the independent 6L water tank.

AHS-50-N AND AHS-75-N

PROGRAM SET UP

- These autoclaves have 10 programs and the first four are predetermined and protected. The rest of the programs, from P4 to P9, can be edited by adjusting the following parameters: sterilization temperature, sterilization time, sterilization controlled by the main chamber temperature probe or the main chamber temperature probe plus the flexible temperature probe and sterilization with temperature maintenance at the end of the cycle (agar mode).
- The alphanumeric screen apart from showing the sterilization parameters, also displays several visual alerts, including warning or failure messages. The available languages include English, Spanish, French and Catalan. For other languages please contact us.

FASTER COOLING PHASE

- Manual steam release push-button for faster cooling phase in solids sterilization cycles.

ADVANTAGES FOR LIQUIDS STERILIZATION CYCLES

- Adjustable temperature holding at the end of the sterilization cycle between 40-80°C (agar mode).
- Optional flexible temperature probe to regulate the sterilization process by the actual temperature inside the load instead of the chamber temperature and prevent liquids from spilling out after opening the chamber door due to the boilover effect.

STERILIZATION WATER MANAGEMENT

- A manual valve is used to supply water to the sterilization chamber tank from the independent 10L water tank.

LARGER SCREEN WITH MORE INFORMATION

- Digital alphanumeric LCD screen with a size of 2 lines x 16 digits that displays multiple parameters, including the following:

1. Program mode
2. Program No.
3. Current sterilization temperature.
4. Current sterilization time.

AHS-N Series

LOADING CAPACITIES

ISO ERLENMEYER FLASKS

Autoclave model	Usable volume L	250mL (Ø85 x 143mm)			500mL (Ø105 x 183mm)			1000mL (Ø131 x 230mm)			2000mL (Ø166 x 280mm)		
		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-N2	21	1	8	**8**	1	4	**4**	0	0	**0**	0	0	**0**
AHS-50-N	50	1	14	**14**	1	8	**8**	1	5	**5**	1	2	**2**
AHS-75-N	75	1	26	**26**	1	15	**15**	1	8	**8**	1	3	**3**

ISO BOTTLES

Autoclave model	Usable volume L	250mL (Ø70 x 143mm)			500mL (Ø80 x 185mm)			1000mL (Ø101 x 230mm)			2000mL (Ø136 x 260mm)		
		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-N2	21	1	8	**8**	1	8	**8**	0	0	**0**	0	0	**0**
AHS-50-N	50	2	20	**40**	1	14	**14**	1	8	**8**	1	5	**5**
AHS-75-N	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-N2

A. Stainless steel tray support compatible with up to 4 trays*.

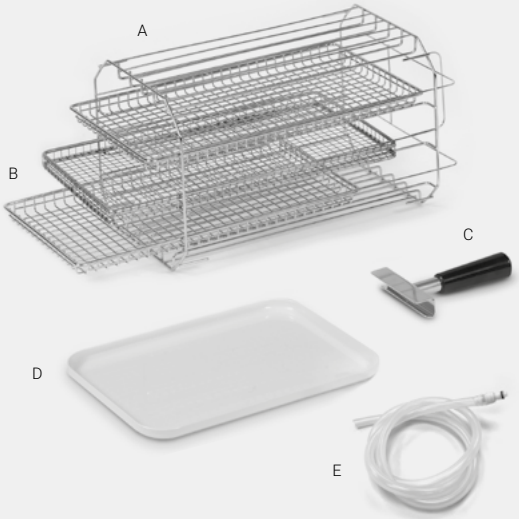
B. 3 stainless steel wire trays.

C. Holding clamp to move the trays.

D. Auxiliary plastic tray for collecting condensed water after opening the door.

E. Silicone tube of 1m with quick connection to drain the independent water tank.

Stainless steel protecting grid for the heating elements.



*Special tray support compatible with up to 5 trays available under request.

AHS-50-N AND AHS-75-N

A. Stainless steel tray support compatible with up to 5 trays.

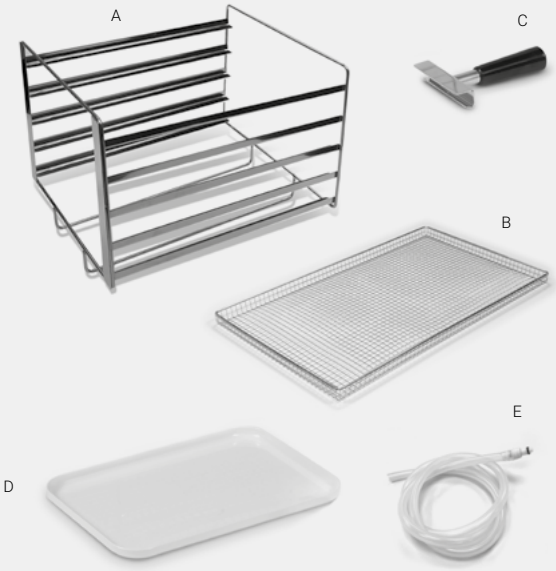
B. 2 stainless steel wire trays.

C. Holding clamp to move the trays.

D. Auxiliary plastic tray for collecting condensed water after opening the door.

E. Silicone tube of 1m with quick connection to drain the independent water tank.

Stainless steel protecting grid for the heating elements.



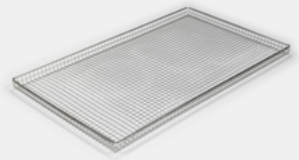
AHS-N Series

ACCESSORIES

STAINLESS STEEL WIRE TRAYS

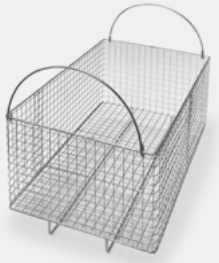
References		BAH-21	BAH-50 B	BAH-75 B
External dimensions L x D mm		190 x 350	315 x 330	315 x 530
Maximum capacity for autoclaves with the following chamber volumes	22 L	4 or 5	-	-
	55 L	-	5	-
	79 L	-	-	5

*Special tray support compatible with up to 5 trays available under request.



STAINLESS STEEL WIRE HORIZONTAL BASKET

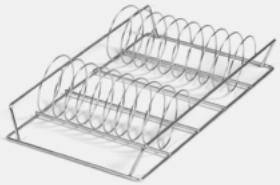
References		RB-AH-21	RB-AHS-50	RB-AHS-75
Dimensions	Exterior L x D x H mm	170 x 340 x 180	324 x 360 x 235	324 x 560 x 235
	Interior L x D x H mm	160 x 330 x 170	314 x 350 x 225	314 x 550 x 225
Maximum capacity for autoclaves with the following chamber volumes	22 L	1	-	-
	55 L	-	1	-
	79 L	-	-	1



STAINLESS STEEL BAG HOLDER SUPPORT*

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

References		FC-215	FC-331	FC-338
Dimensions	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
Maximum capacity for autoclaves with the following chamber volumes	22 L	2	-	-
	55 L	6	2	2
	79 L	9	2	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.

This accessory is not compatible with AH-21-N2 models.

Ref. PT-2-AH

Download technical data sheet

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.

This accessory is not compatible with AH-21-N2 models.

Ref. ITS

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

Download technical data sheet

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.

This accessory is not compatible with AH-21-N2 models.

Ref. IT

Consumable: PAPER-IT for paper

Download technical data sheet

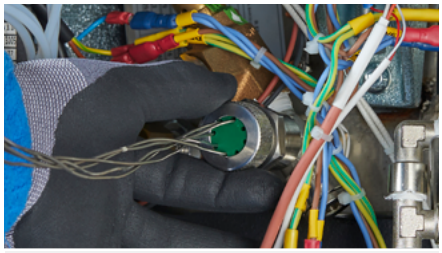
SW7000 SOFTWARE

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 RS-232.

It is supplied with a RS-232 cable, a USB stick that includes the software and installation drivers, and a RS-232 to USB adapter.

Ref. SW7000



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

AHS-N Series

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

Download technical data sheet

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

Download technical data sheet

WATER DISTILLER

Forced air water distiller with stainless steel interior, 4L capacity and 1,5L/h distillation volume.

Ref. DEM-4

Download technical data sheet

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. VAL-DL

Download technical data sheet

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

Download technical data sheet

SPECIFIC SERVICES

IQ-OQ DOCUMENTATION

Delivery of documentation and protocols for autoclave qualification through a third party.

Ref. IQ-OQ DOC

Download technical data sheet

IQ-OQ-PQ QUALIFICATION

Autoclave qualification service performed by RAYPA technicians or authorized entities. It covers the startup of the equipment and the comprehensive qualification of its performance.

Ref. IQ-OQ-PQ

Download technical data sheet

CALIBRATION CERTIFICATE FOLLOWING ENAC TRACEABILITY STANDARDS

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

Ref. MAPEO-ENAC

MAPPING OF STABILITY AND HOMOGENEITY

Generation of documentary evidence certifying that the temperature and pressure distribution within the autoclave is uniform and stable, in accordance with the manufacturer's design specifications.

Ref. MAP-3, MAP-7 and MAP-9

ON-SITE COMMISSIONING & TRAINING

On-site commissioning, which includes verification of the correct operation and installation of the equipment and a training session for users on the use and maintenance of the equipment.

Ref. INSAE

Download technical data sheet

REMOTE COMMISSIONING & TRAINING

Guided remote startup including a training session for users on the operation and maintenance of the equipment.

Ref. INSAE-REM

Download technical data sheet

MAINTENANCE CONTRACT

Regular inspection plan that includes technical inspection, probe calibration and compliance with the preventive maintenance plan, in addition to tariff discounts.

Ref. MANT-1.4 and MANT-1.5

EXTENDED WARRANTY

Extended warranty up to a total of 3 years.

Ref. WE-CL

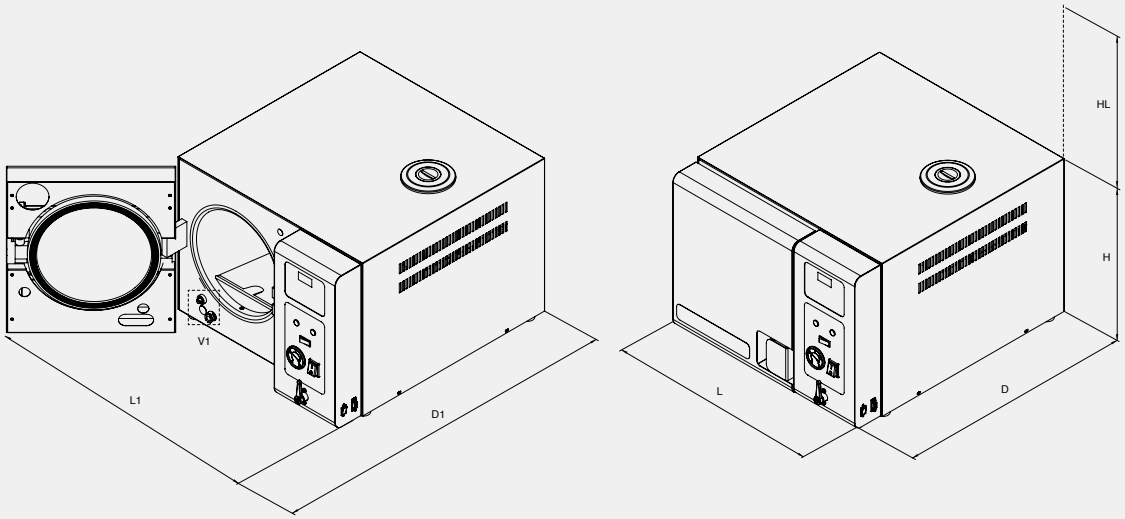
SET OF CONSUMABLES, SPARE PARTS AND ESSENTIAL COMPONENTS

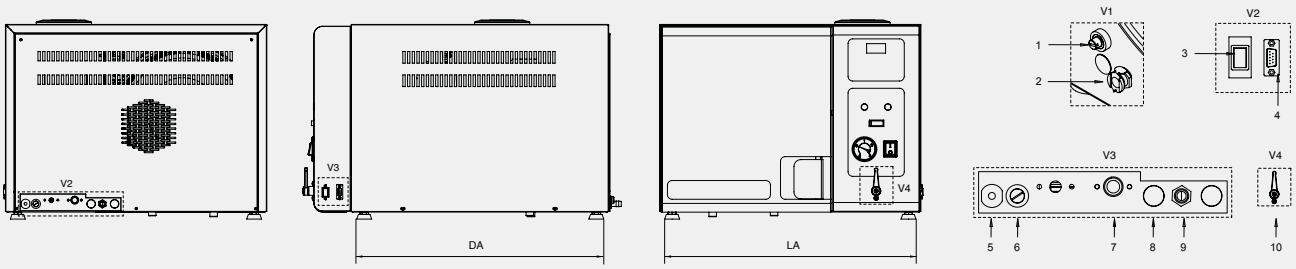
Set of spare parts, consumables and original components selected to meet the maintenance plan of each model with the aim of maximizing the lifespan of the equipment and minimizing downtime in the event of a breakdown.

AHS-N Series

TECHNICAL DRAWINGS

AH-21-N2





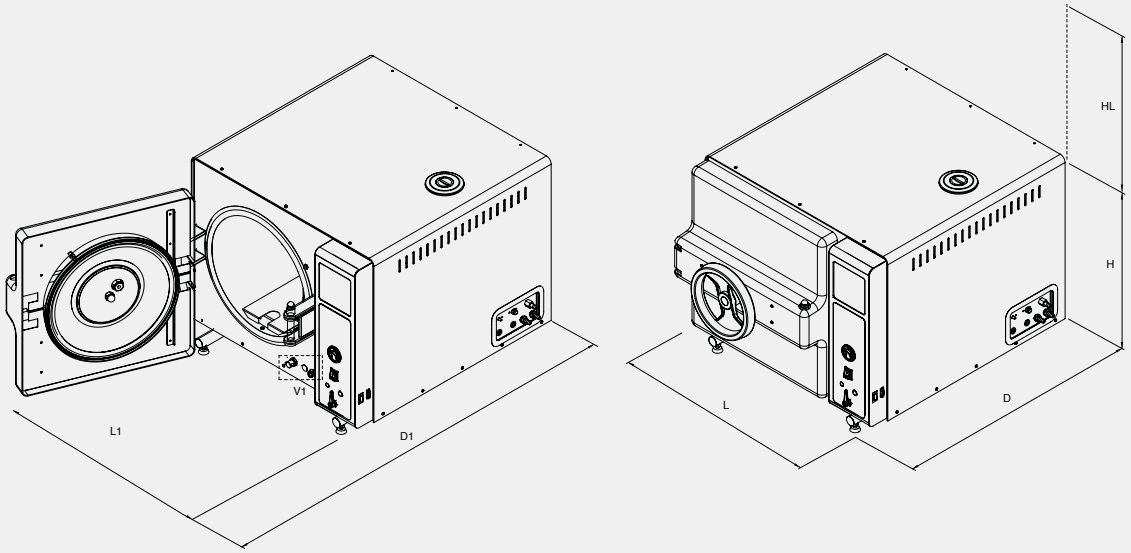
MODEL	L LENGTH with closed door	L1 LENGTH with maximum door opening	D DEPTH	D1 DEPTH with maximum door opening	H HEIGHT	LA x DA SUPPORT AREA	HL FREE HEIGHT for filling the independent water tank
AH-21-N2	560 mm	740mm	680 mm	970 mm	425 mm	537 x 527 mm	400 mm

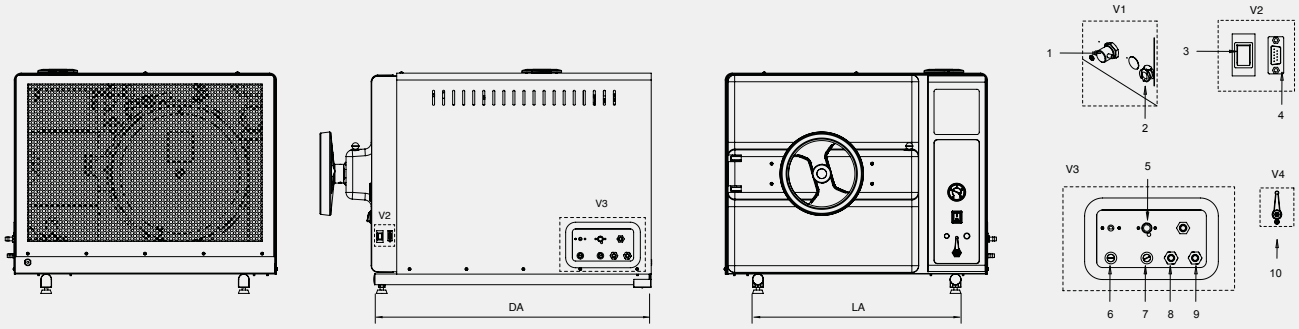
CONNECTIONS

1	Access to the drain filter and sterilization chamber drain outlet
2	Independent water tank drain outlet
3	PC/Printer Selector
4	RS-232 Port
5	Power cable
6	Mains fuse
7	Safety thermostat for the heating elements
8	Independent water tank overflow outlet
9	Safety valve outlet
10	2-position valve for dispensing water into the sterilization chamber

TECHNICAL DRAWINGS

AHS-50-N and AHS-75-N





MODELS	L LENGTH with closed door	L1 LENGTH with maximum door opening	D DEPTH	D1 DEPTH with maximum door opening	H HEIGHT	LA x DA SUPPORT AREA	HL FREE HEIGHT for filling the independent water tank
AHS-50-N	805 mm	1240 mm	805 mm	1230 mm	650 mm	622 x 670 mm	400 mm
AHS-75-N	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
2	Independent water tank drain outlet
3	PC/Printer Selector
4	RS-232 Port
5	Safety thermostat for the heating elements
6	Mains fuse
7	Mains fuse
8	Independent water tank overflow outlet
9	Safety valve outlet
10	2-position valve for dispensing water into the sterilization chamber

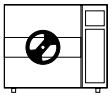
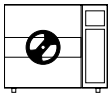
AHS-N Series

TECHNICAL BRIEF

Available models		AH-21-N2	AHS-50-N and AHS-75-N
General classification	Recommended setting	Small facilities	General laboratory
	Equipment placement	Benchtop	
	Load direction	Frontal	
	Chamber profile	Round	
Recommended type of load	Culture media and liquids	+	++
	Laboratory waste bags	+	
	Porous solids and wrapped loads	-	
	Glassware	++	
Sterilization technology features	Steam generation method	Heating elements	
	Type of purge	Gravity displacement	
Transfer of data	RS-232	✔	
Batch printers	Integrated printer	-	0
	External printer	-	0
Sterilization chamber and door specifications	Sterilization chamber volume	22 L	55 - 79 L
	External building materials	Metallic & AISI-304	
	Sterilization chamber material	AISI-316L	
	Heating elements material	Incoloy® 825	
	Gasket material	Silicone rubber	
	Maximum pressure (above atmospheric pressure)	2,1 Barg	
	Mechanism to open the door	Handle	Wheel
	Direction in which the door opens	Frontal	
	Thermally insulated door	✔	
	Automatic locking with pressure	✔	
Water management	Independent water tank capacity	6 L	10 L
User interface and microprocessor	Screen display	Digital LCD	
	Screen size	1 line x 3 digits	2 lines x 16 digits
	Total number of available programs	1	10
	Automatic microprocessor control	✔	
	Timer start	✔	
Special cycles and process optimization	Agar mode (temperature holding after cycle ends 40-80ºC)	-	✔
	Solids fast cooling	✔	
Adjustable cycle parameters	Solids mode	✔	-
	Agar mode	-	-40 - 80°C
	Temperature of sterilization phase	100 - 134°C	
	Duration of sterilization phase	1 - ∞ min	1 - 250 min
	Temperature control by flexible probe	-	On/Off
Other specifications	Flexible temperature probe	-	0
	Pressure gauge	✔	
	Custom electrical features (115-230M V / 230-400T V)	0	
Services	Third-party qualification (IQ-OQ-PQ)	0	

+: Recommended: Included 0: Optional

TECHNICAL DATA

Specifications

References	AH-21-N2	AHS-50-N	AHS-75-N
Total/usable volume of the chamber L	22 / 21	55/50	79/75
Usable dimensions of the chamber Ø max. x D mm	210 x 430	360 x 400	360 x 600
Volume of the built-in water tank L	6	10	10
External dimensions L x D x H mm	560 x 680 x 425	805 x 805 x 650	805 x 1005 x 650
Maximum number of trays	4 or 5	5	5
Tray size L x D mm	190 x 350	315 x 330	315 x 530
Net weight Kg	45	93	110
Power W	2000	2800	3200
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 thermostat with manual rearm for the heating elements.
- Pneumatic door blocking system while positive pressure exists inside the sterilization chamber.
- Open door sensor.
- Thermally insulated door.
- Heating elements cover.
- Several visual and acoustic safety and warning alarms.

Regulations

All of our AHS-N 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

Available models	AH-21-N2	AHS-50-N and AHS-75-N
Adjustable sterilization temperature	100 - 134 ºC	
Adjustable sterilization time	1 - ∞ min	1 - 250 min
Max. pressure	2,1 Barg	
Sterilization control system	Fully automatic by chamber temperature probe	Fully automatic by either chamber temperature probe or flexible temperature probe
Air purge system	Gravity displacement	
Sterilization chamber material	AISI-316L STAINLESS steel	
Heating elements material	Incoloy® 825	
Gasket material	Silicone rubber	
Connection to PC	RS-232	
Connection to printer	-	RS-232 or integrated
Number of programs	1	10 (4 preset and 6 user free)
Programmable auto-start	1 - ∞ min	Up to 24 h
Screen type	LCD display	
Opening door mode	Front-loading swiveling door	
Monitoring of sterilization parameters	Self-control of obtained values (Tº & t) vs programmed values. Cycle is automatically interrupted if obtained values differ from programmed values	
Pressure display	Pressure gauge on control panel	
Water management	Independent manually fed water tank with manual valve to feed water to the sterilization chamber	
Drainage system	Drainage connections for both drainage and overflow of the independent 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

RAYPA

www.raypa.com

Avinguda del Vallès, 322
08227 Terrassa (Barcelona) Spain

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