

# RAYPA

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## 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 50 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.



Temperature control by a PT-100 Class A temperature probe located within the sterilization chamber.



Equipment built following all applicable European Union quality, regulatory and safety standards.



Faster cooling phase in solids sterilization cycles through a steam release function at the end of the sterilization.



Heating by powerful electric elements made of Incoloy® 825 assembled inside the sterilization chamber and shielded by a protective grid.



Adjustable temperature holding at the end of the sterilization cycle between 40-80°C (agar mode)\*.



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)\*.



Optional software for sterilization data management.



Optional integrated or external printer \*.



Programmable auto-start.



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.



## 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.

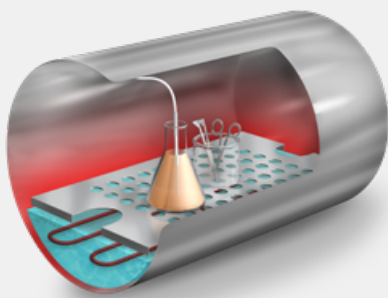
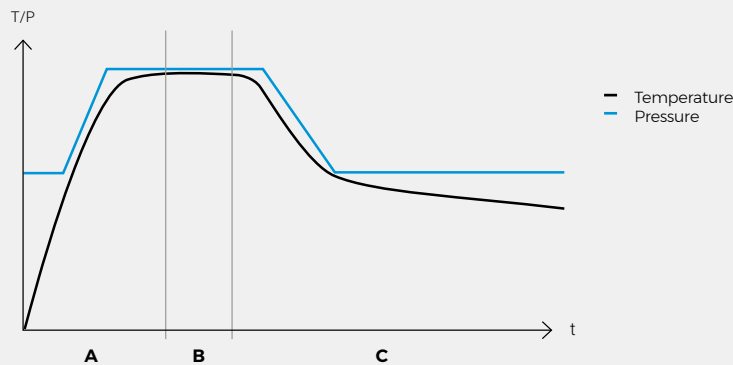
### COOLING PHASE

- 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.

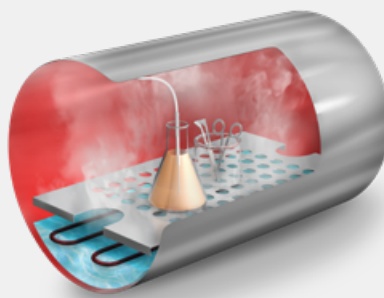
#### AHS-50-N and AHS-75-N

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

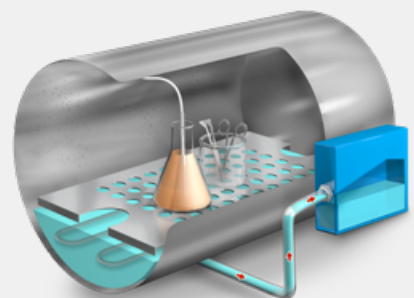
If agar mode is on, the equipment will hold the preprogrammed temperature indefinitely, selectable between 40 and 80°C.



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.



## LOADING CAPACITIES



ISO ERLENMEYER FLASKS

| Autoclave model | Usable volume L | 250mL<br>(Ø85 x 143mm) |                |             | 500mL<br>(Ø105 x 183mm) |                |             | 1000mL<br>(Ø131 x 230mm) |                |             | 2000mL<br>(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<br>(Ø70 x 143mm) |                |             | 500mL<br>(Ø80 x 185mm) |                |             | 1000mL<br>(Ø101 x 230mm) |                |             | 2000mL<br>(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           |

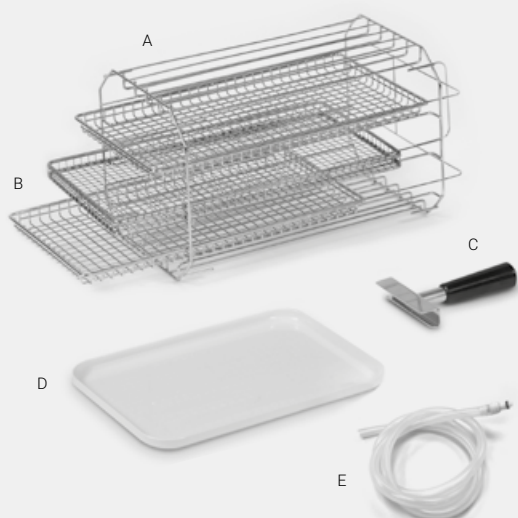
The data contained within these tables, regarding load capacities, serves as a non-binding guide to assist you in the selection of the most appropriate autoclave model.

## 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.

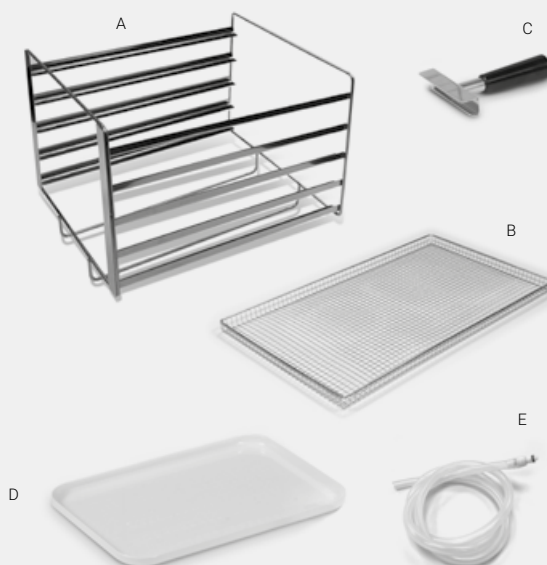


\*Special tray support compatible with up to 5 trays available under request.



### 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.

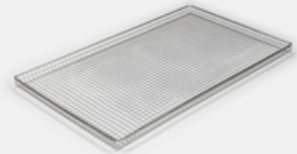


## ACCESSORIES

### STAINLESS STEEL WIRE TRAYS

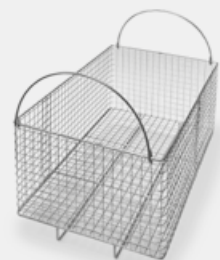
| References                                                         |          | BAH-21    | BAH-50 B  | BAH-75 B  |
|--------------------------------------------------------------------|----------|-----------|-----------|-----------|
| External dimensions                                                | 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**



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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.

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

**Ref. ITS**

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



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### 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.

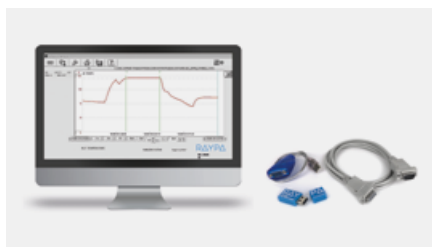
This accessory is not compatible with AH-21-N2 models.

**Ref. IT**

**Consumable: PAPER-IT for paper**



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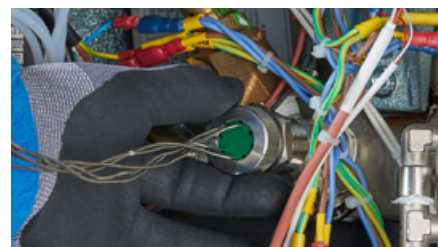
### SW7000 SOFTWARE

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**



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# 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**



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### 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**



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### WATER DISTILLER

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

**Ref. DEM-4**



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### 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**



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### 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**



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### INTERNAL RADIAL FAN

Optimize and reduce cooling time, ensuring greater efficiency in sterilization processes.

Must be installed in our facilities.

Not compatible with model AH-21-N2.

**Ref. AIRCOOL-H**



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## SPECIFIC SERVICES



### **IQ-OQ DOCUMENTATION**

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

**Ref. IQ-OQ DOC**



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### **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**



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### **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**



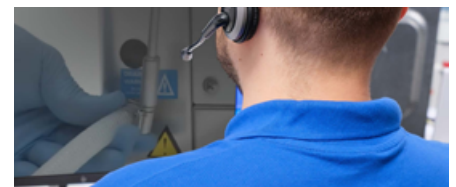
### **ON-SITE COMMISSIONING & TRAINING**

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**



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### **REMOTE COMMISSIONING & TRAINING**

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

**Ref. INSAE-REM**



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### **MAINTENANCE CONTRACT**

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

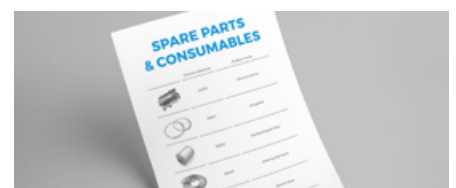
**Ref. MANT-1.4 and MANT-1.5**



### **EXTENDED WARRANTY**

Extended warranty up to a total of 3 years.

**Ref. WE-CL**

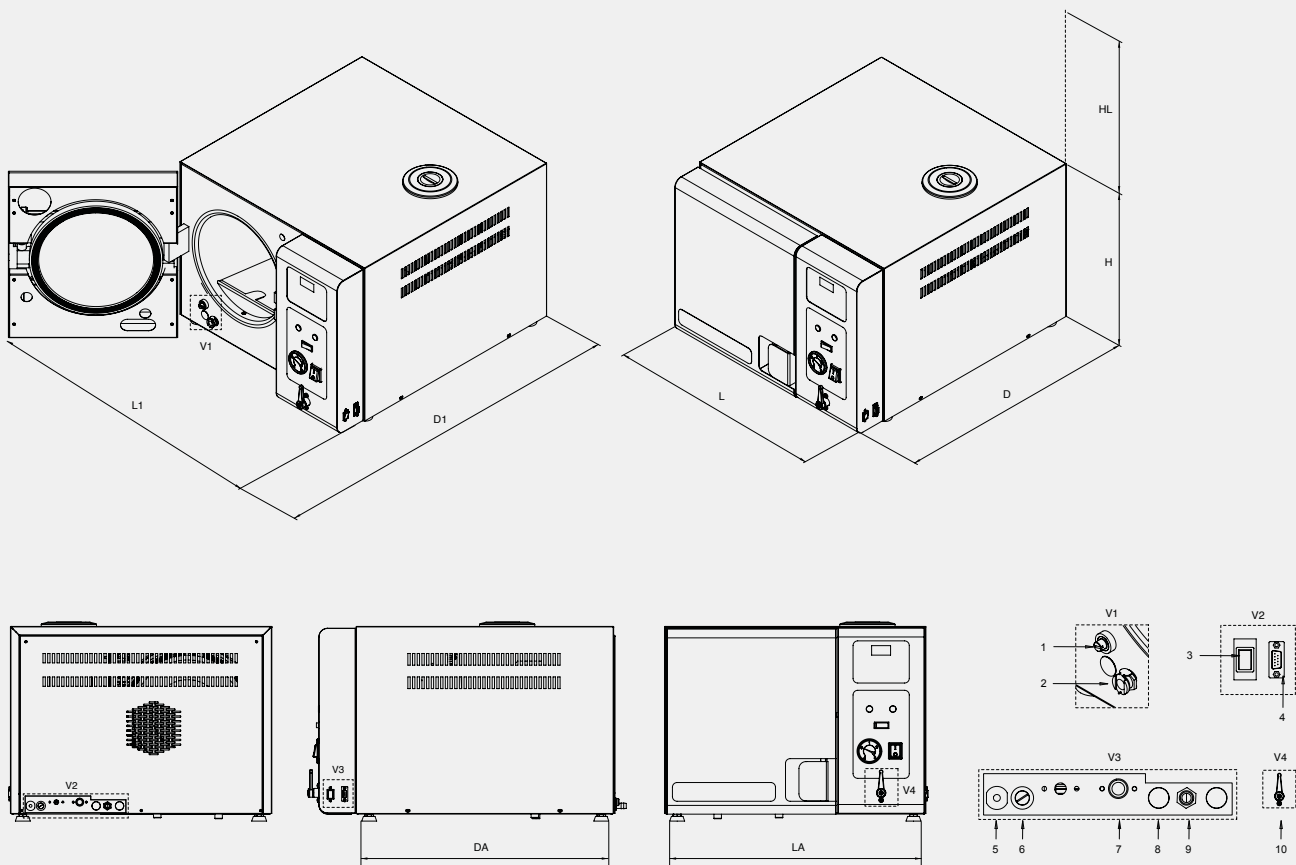


### **SET OF CONSUMABLES, SPARE PARTS AND ESSENTIAL COMPONENTS**

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.

TECHNICAL DRAWINGS

AH-21-N2



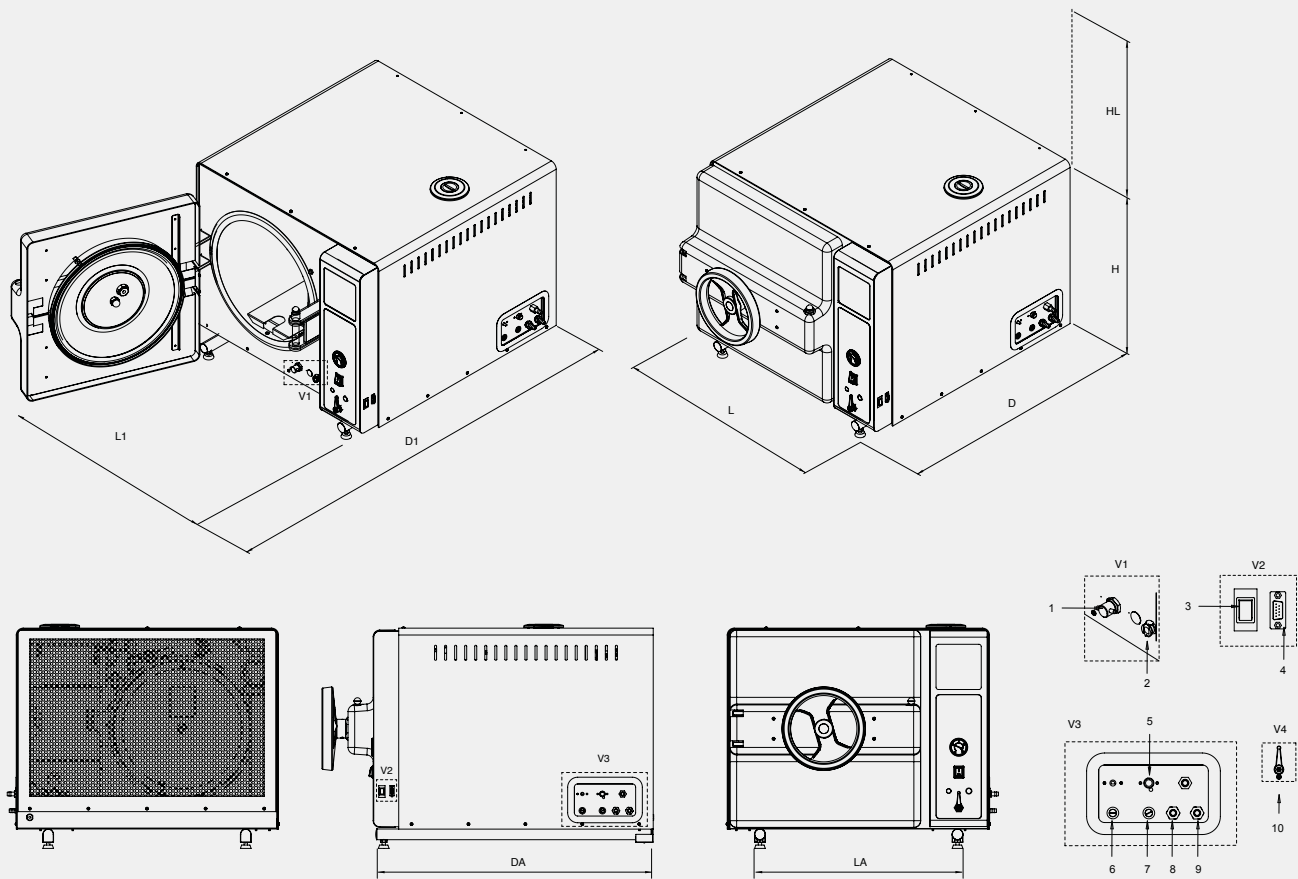
| MODEL    | L<br>LENGTH<br>with closed door | L1<br>LENGTH<br>with maximum door<br>opening | D<br>DEPTH | D1<br>DEPTH<br>with maximum door<br>opening | H<br>HEIGHT | LA x DA<br>SUPPORT AREA | HL<br>FREE HEIGHT<br>for filling the<br>independent water tank |
|----------|---------------------------------|----------------------------------------------|------------|---------------------------------------------|-------------|-------------------------|----------------------------------------------------------------|
| 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 | 7  | Safety thermostat for the heating elements                           |
| 2 | Independent water tank drain outlet                               | 8  | Independent water tank overflow outlet                               |
| 3 | PC/Printer Selector                                               | 9  | Safety valve outlet                                                  |
| 4 | RS-232 Port                                                       | 10 | 2-position valve for dispensing water into the sterilization chamber |
| 5 | Power cable                                                       |    |                                                                      |
| 6 | Mains fuse                                                        |    |                                                                      |

TECHNICAL DRAWINGS

AHS-50-N and AHS-75-N



| MODELS   | L<br>LENGTH<br>with closed door | L1<br>LENGTH<br>with maximum door<br>opening | D<br>DEPTH | D1<br>DEPTH<br>with maximum door<br>opening | H<br>HEIGHT | LA x DA<br>SUPPORT AREA | HL<br>FREE HEIGHT<br>for filling the<br>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

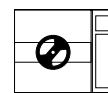
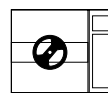
|   |                                                                   |    |                                                                      |
|---|-------------------------------------------------------------------|----|----------------------------------------------------------------------|
|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

## 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                                 |                   | ✓                     |
|  Water management                              | Automatic locking with pressure                          |                   | ✓                     |
|                                                                                                                                   | 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 40-80°C) | -                 | ✓                     |
|                                                                                                                                   | 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 °C                                                                                                                                                            |                                                                                   |
| 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 (T° & 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

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