

AE-MP SERIES - INSTALLATION GUIDE

Information to consider before installing your RAYPA media preparator.

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STANDARD MEDIA PREPARATORS AE-MP SERIES

ELECTRICAL CONNECTION STANDARD

The following table shows the plug configuration according to international IEC and SCHUKO standards. For customers requiring other plugs and other electrical configurations, please contact our technical team.

MODELS	FREQUENCY	POWER	AMPERES / PHASE	TENSION	CONNECTION
AE-20-MP-10L	50/60 Hz	3000 W	13 A	230 (1P+N+PE) V	16 A ①
AE-20-MP-10L-115V	50/60 Hz	3000 W	26 A	120 (1P+N+PE) V	32 A ④
AE-20-MP	50/60 Hz	3000 W	13 A	230 (1P+N+PE) V	16 A ①
AE-20-MP-115V	50/60 Hz	3000 W	26 A	120 (1P+N+PE) V	32 A ⑩
AE-40-MP	50/60 Hz	6000 W	9 A	400 (3P+N+PE) V	16 A ②
AE-40-MP-12K	50/60 Hz	12000 W	18 A	400 (3P+N+PE) V	32 A ③
AE-40-MP-220T	50/60 Hz	6000 W	15 A	230 (3P+PE) V	16 A ⑤
AE-40-MP-220M	50/60 Hz	6000 W	26 A	230 (1P+N+PE) V	32 A ④
AE-40-MP-12K-220T	50/60 Hz	12000 W	30 A	230 (3P+PE) V	32 A ⑥
AE-60-MP	50/60 Hz	9000 W	13 A	400 (3P+N+PE) V	16 A ②
AE-60-MP-15K	50/60 Hz	15000 W	22 A	400 (3P+N+PE) V	32 A ③
AE-60-MP-220T	50/60 Hz	9000 W	23 A	230 (3P+PE) V	32 A ⑥
AE-60-MP-15K-220T	50/60 Hz	15000 W	38 A	230 (3P+PE) V	63 A ⑧
AE-80-MP	50/60 Hz	15000 W	22 A	400 (3P+N+PE) V	32 A ③
AE-80-MP-20K	50/60 Hz	20000 W	29 A	400 (3P+N+PE) V	32 A ③
AE-80-MP-30K	50/60 Hz	30000 W	43 A	400 (3P+N+PE) V	63 A ⑦
AE-80-MP-220T	50/60 Hz	15000 W	38 A	230 (3P+PE) V	63 A ⑧
AE-80-MP-20K-220T	50/60 Hz	20000 W	51 A	230 (3P+PE) V	63 A ⑧
AE-100-MP	50/60 Hz	15000 W	22 A	400 (3P+N+PE) V	32 A ③
AE-100-MP-20K	50/60 Hz	20000 W	29 A	400 (3P+N+PE) V	32 A ③
AE-100-MP-30K	50/60 Hz	30000 W	43 A	400 (3P+N+PE) V	63 A ⑦
AE-100-MP-220T	50/60 Hz	15000 W	38 A	230 (3P+PE) V	63 A ⑧
AE-100-MP-20K-220T	50/60 Hz	20000 W	51 A	230 (3P+PE) V	63 A ⑧



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ELECTRICAL CONNECTION NORTH AMERICA

The following table shows the plug configuration according to the NEMA standard for the United States and other countries. For customers requiring other plugs and other electrical configurations, please contact our technical team.

Attention: The following table lists standard electrical configuration versions. The voltage can be modified to suit other configurations if required. Moreover, certain models can be adjusted between single-phase and three-phase. Additionally, the provided NEMA plug can also be customized if needed.

MODELS	FREQUENCY	POWER	AMPERES / PHASE	TENSION	CONNECTION
AE-20-MP-10L-115V-US	50/60 Hz	3000 W	26 A	120 (1P+N+PE) V	NEMA 5-30P 1
AE-20-MP-115V-US	50/60 Hz	3000 W	26 A	120 (1P+N+PE) V	NEMA 5-30P 1
AE-40-MP-220T-US	50/60 Hz	6000 W	15 A	230 (3P+PE) V	NEMA L15-20P 2
AE-40-MP-12K-220T-US	50/60 Hz	12000 W	30 A	230 (3P+PE) V	NEMA 15-50P 4
AE-60-MP-220T-US	50/60 Hz	9000 W	23 A	230 (3P+PE) V	NEMA L15-30P 3
AE-60-MP-15K-220T-US	50/60 Hz	15000 W	38 A	230 (3P+PE) V	NEMA 15-50P 4
AE-80-MP-220T-US	50/60 Hz	15000 W	38 A	230 (3P+PE) V	NEMA 15-50P 4
AE-80-MP-20K-220T-US	50/60 Hz	20000 W	51 A	230 (3P+PE) V	NEMA 15-60P 5
AE-100-MP-220T-US	50/60 Hz	15000 W	38 A	230 (3P+PE) V	NEMA 15-50P 4
AE-100-MP-20K-220T-US	50/60 Hz	20000 W	51 A	230 (3P+PE) V	NEMA 15-60P 5

1



5-30R

2



L15-20R

3



L15-30R

4



15-50R

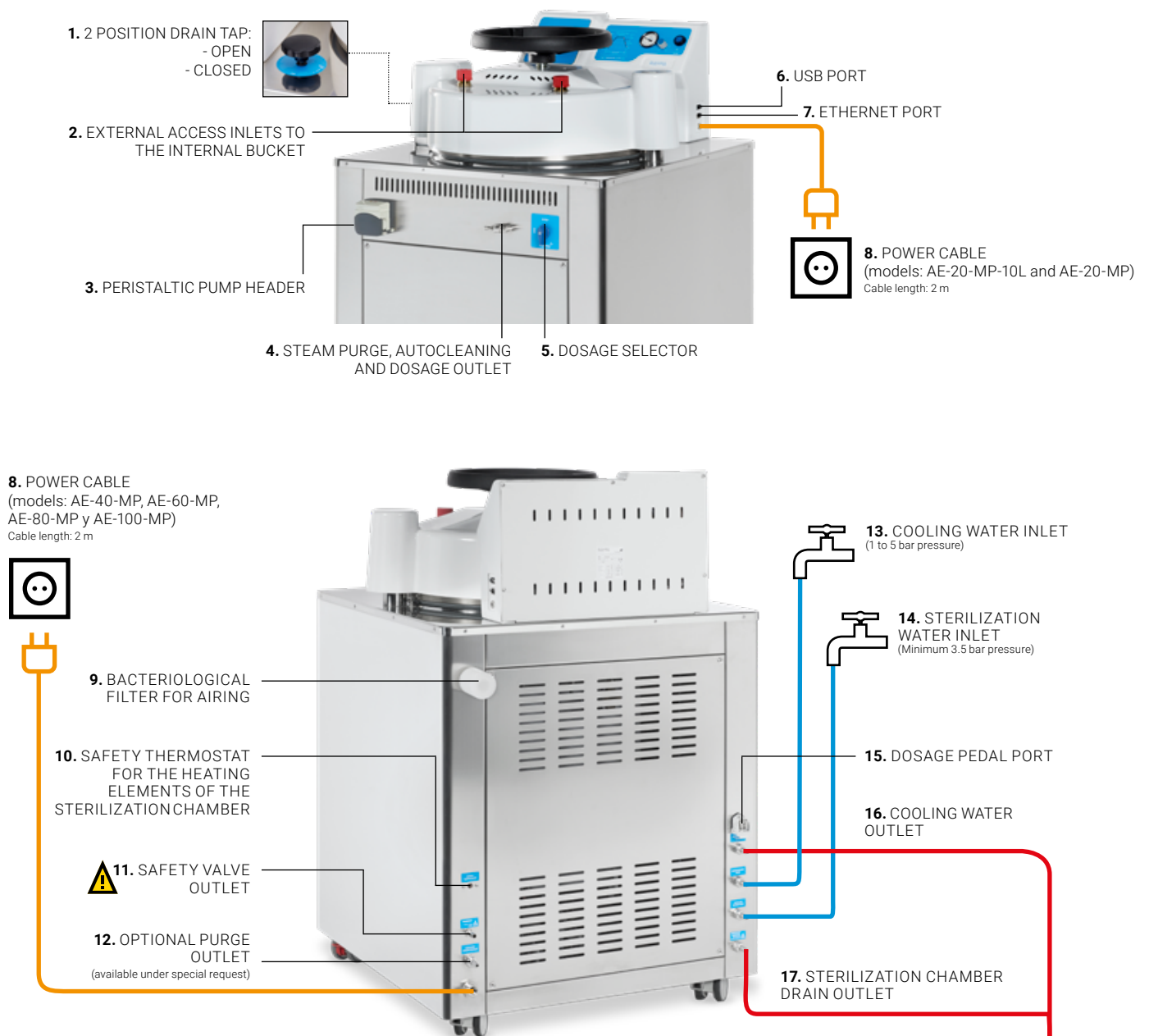
5



15-60R

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CONNECTIONS GRAPH



 *Outlet 12 must be left unobstructed at all times.

ATTENTION!
Connections to the drainage must be fixed properly to it.

COMPONENTS INCLUDED

In addition to the accessories chosen at the time of purchase of the media preparator (printer, dosage station, etc.), the following components are included:



2 reinforced silicon hoses 2m long of Ø9 x Ø16 mm with fast connection to the media preparator and a threaded connection for a 3/4" GAS tap on the other end.

For:

- 13. COOLING WATER INLET**
- 14. STERILIZATION WATER INLET**



2 reinforced silicon hoses 2m long of Ø9 x Ø16 mm with fast connection to the media preparator and a free connection to the drain on the other end.

For:

- 16. COOLING WATER OUTLET**
- 17. STERILIZATION CHAMBER DRAIN OUTLET**



Set of 2 silicon dosage pipes 2m long with a press-fit connection to the media preparator and a nozzle on the other end*.

- Ø6,4 mm tube with a Ø6 mm nozzle
- Ø8 mm tube with a Ø8 mm nozzle

For:

- 4. STEAM PURGE, AUTOCLEANING AND DOSAGE OUTLET**

*AE-20-MP-10L and AE-20-MP models also include a Ø4,8 mm tube with a Ø4 mm nozzle.



1 mechanical pedal for dosage with a 1,8m long cable and a electrical connection to the media preparator.

For:

- 15. DOSAGE PEDAL PORT**

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COMPONENTS INCLUDED



1 bottle to collect condensed steam during the automatic self-cleaning and disinfection of the dispensing lines, prior to the sterilization phase, during the emptying of the lines with pressurized air, and during the predefined automatic cleaning program.



1 stand equipped with a 650mm height rod and two adjustable height clamps to hold the dispensing line.



1 media volume indicator for the internal bucket to ease the dosing of water.

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DRAINAGE CONNECTIONS

The provided hose must be connected to the STERILIZATION CHAMBER DRAINAGE OUTLET **(17)**, driven to a drain and attached to it to perform the drainage of the sterilization chamber.

Connect the provided hose from the COOLING WATER OUTLET **(16)**, drive it to a drain and attach it properly.

Then, manually operate the DRAIN TAP **(1)** to let the water out.



ATTENTION:

If drains and outlets are used shortly after a sterilization cycle has finished, water may run out at a high temperature. The drainage system must withstand a minimum temperature of 80°C. If this requirement is not met, please contact us.

CONSIDER:

Height and position of drain outlets.

MODEL	HD STERILIZATION CHAMBER DRAIN OUTLET	HE COOLING WATER OUTLET
AE-20-MP-10L	100	330
AE-20-MP	100	330
AE-40-MP	120	350
AE-60-MP	140	365
AE-80-MP	145	365
AE-100-MP	145	365



AUTOMATIC CLEANING OF THE DISPENSING LINES

Connect the provided silicon hoses in the STEAM PURGE, AUTOCLEANING AND DOSAGE OUTLET (4) to perform the following actions on the media preparator while the cycle is occurring:



IMPORTANT

When performing any of the 3 processes listed in this section, always place the metallic nozzle inside the supplied bottle to avoid possible burn wounds and collect the condensed steam. Also, it is recommended to perform these processes inside a laminar flow hood to avoid contamination problems.

1. BEFORE DISPENSING **MANDATORY**

Self-cleaning and disinfection of the lines with continuous steam, which is automatically activated in each cycle, just before starting the sterilization phase. To perform this action, you must follow the steps below:



1. Set the dosing selector to "CLOSED" mode.



2. Check that the dispensing line is not pinched by the peristaltic pump or the external dosing station.



3. Place the metal nozzle of the dispensing line inside of the supplied bottle.

2. DURING DISPENSING **OPTIONAL**

The activation of pressurized air causes the emptying of the lines. This mode allows the dispensing process to be stopped, usually for breaks or when the operator needs to be absent for an extended period of time. To perform this action, you must follow the steps below:



1. Set the dosing selector to "CLOSED" mode.



2. Check that the dispensing line is not pinched by the peristaltic pump or the external dosing station.



3. Place the metal nozzle of the dispensing line inside of the supplied bottle.



4. Select the purge option with pressure support.

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3. AFTER DISPENSING **RECOMMENDED**

The predefined P1 CLEANING program is essential for daily maintenance. By generating continuous steam, this program performs a deep cleaning inside the circuit, ensuring that the lines and conduits of the media preparator are completely clean. It must be activated at the end of the working day or when changing media type. To perform this action, you must follow the steps below:



1. Set the dosing selector to "OPEN" mode.



2. Check that the dispensing line is not pinched by the peristaltic pump or the external dosing station.



3. Place the metal nozzle of the dispensing line inside of the supplied bottle.



4. Select the P1 CLEANING program.

SUGGESTION

To enhance the effectiveness of the P1 CLEANING program, it is recommended to first perform a pre-wash by following the steps below:



1. Add 1L of distilled water to the inner vessel.



2. Set the dosing selector to "OPEN" mode and ensure the dispensing line is pinched by the peristaltic pump.



3. Activate the magnetic stirring of adjustable speed.



4. Dispense continuously into a container using the peristaltic pump.

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WATER SUPPLY FOR COOLING

Decalcified water is recommended to supply the cooling coils to prevent the formation of lime residue deposits inside the system.

The COOLING WATER INLET (13) must be connected with the hose to a 3/4" GAS tap from a water main with a minimum pressure of 1Bar.

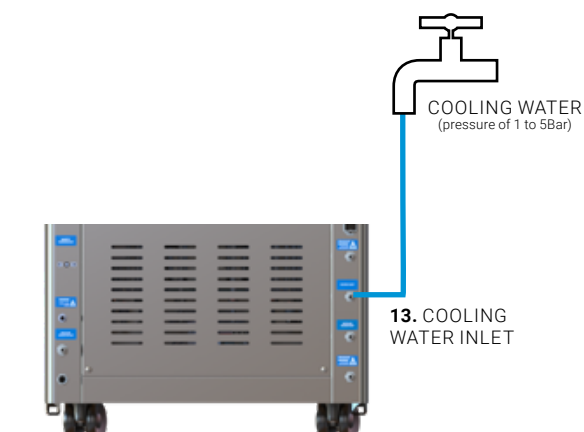
WATER TYPE	MG/L ¹	FH ²	DH ³	EH ⁴
Soft water	≤17	≤1,7	≤0,95	≤1,19
Slightly hard water	≤60	≤6,0	≤3,35	≤4,20
Moderately hard water	≤120	≤12,0	≤6,70	≤8,39
Hard water	≤180	≤18,0	≤10,05	≤12,59
Very hard water	>180	>18,0	>10,05	>12,59

¹ Mg/L: calcium carbonate (CaCO₃) milligrams per liter of water.

² FH: French hardness (10,0mg CaCO₃/L).

³ DH: German hardness (17,8mg CaCO₃/L).

⁴ EH: English hardness (14,3mg CaCO₃/L).



USE OF WATERSOFT-MP IN COMBINATION WITH AE-MP

If you don't have a soft water main available where you intend to install your AE-MP media preparator, we recommend using the WATERSOFT-MP water softener.

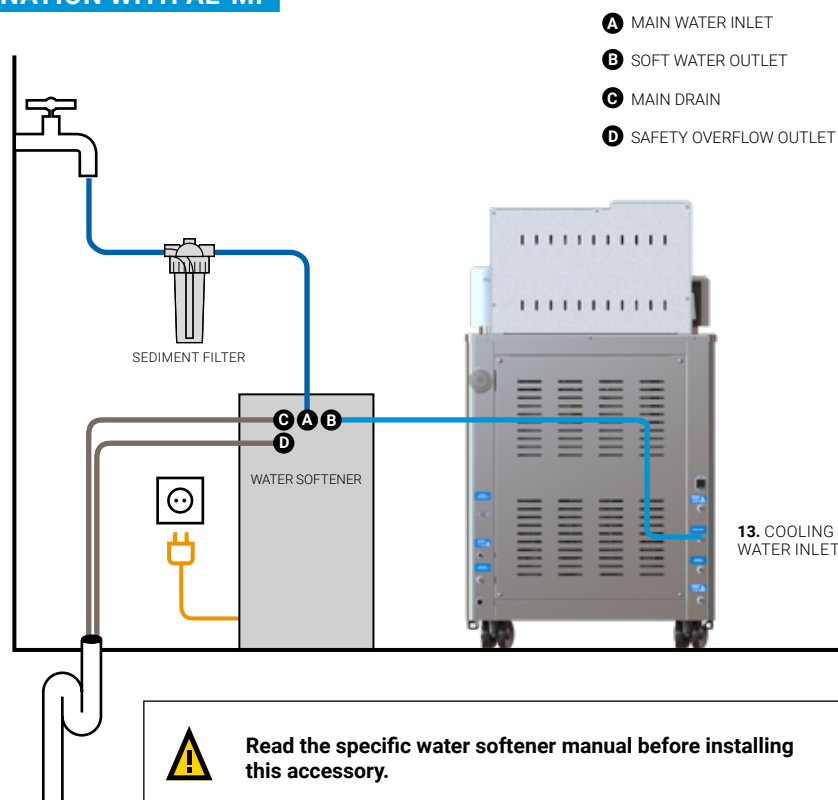
The WATERSOFT-MP water softener comes with all hoses needed for installation (hoses are 2 meters long), one particle filter equipped with a cartridge and a water hardness measuring kit.

The MAIN WATER INLET (A) must be connected to the water main with the provided 2m hose after going through the included sediment filter (water temperature from the main must be between 5 °C and 38 °C).

Soft water must be driven from the SOFT WATER OUTLET (B) to the COOLING WATER INLET (13) of the media preparator using the 2m long included hose.


The pre-installed drainage hoses: MAIN DRAIN (C) and SAFETY OVERFLOW OUTLET (D) must be driven to the drain.

Water softener inlet and drainage hoses must always be visible and in good condition.



WATER SUPPLY FOR STERILIZATION

MANUAL SUPPLY **OPTIONAL**

Purified water is necessary for the functioning of the culture media preparator and it can be optionally added by hand directly into the sterilization chamber until this sign  is visible on the media preparator's screen.

The sterilization chamber has minimum and maximum volume sensors.



IMPORTANT NOTE:

PURIFIED WATER

Water used to feed the media preparator must be free of contaminants and meet the following hardness and conductivity requirements:

- Hardness: $\leq 0,02\text{mmol/L}$
- Conductivity: between $5\mu\text{S/cm}$ and $15\mu\text{S/cm}$

Multiple systems may be used to obtain water which fulfills these requirements: osmosis, demineralization, decalcified water, etc*.

*Note: Take into account that distilled water that is too pure (conductivity less than $5\mu\text{S/cm}$) is not recommended as it may cause corrosion on stainless steel in the long term and water level detection problems in some models.

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WATER SUPPLY FOR STERILIZATION

AUTOMATIC SUPPLY **RECOMMENDED**

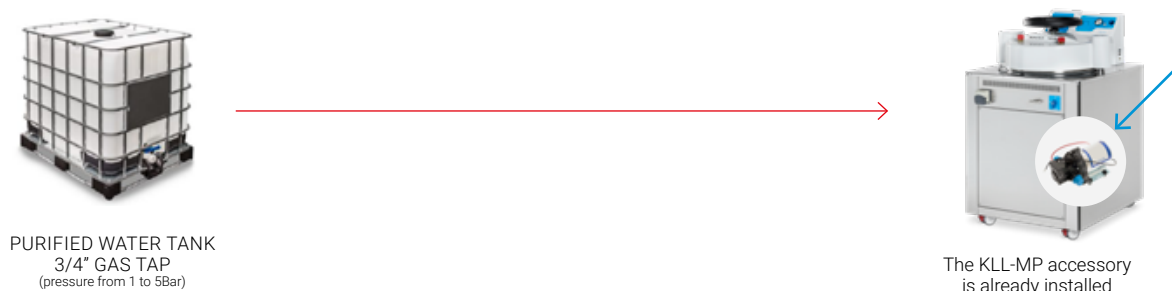
All AE-MP Series media preparators can be optionally equipped with a water pump to make the water supply to the sterilization chamber completely automatic.

If you have chosen the **KLL-MP** automatic water filling accessory (optional, but installed in the factory), there are supply options **A**, **B**, and **C** using the STERILIZATION WATER INLET connection **(14)**.

A. Use a water main (3,5Bar minimum pressure) connected to a ECOPUR-MP water purifier and connect the purifier to a tank which will be connected to the sterilization water inlet of the media preparator.



B. Use a purified water tank.



C. In case you have a previously purified water main with pressure below 3,5 bar.



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In case you have a previously purified water main with a pressure of at least 3,5 bar, supply option D is available.

D. The device can be connected directly to the water main and the filling of the sterilization chamber can be automated, if the following conditions are met:

- If the water main supplies purified water.
- If the supplied water has a pressure 3,5 bar.



3/4" GAS TAP
PURIFIED MAIN WATER
(pressure above 3,5 bar)



It is not necessary to install
the KLL-MP accessory

USE OF ECOPUR-MP IN COMBINATION WITH AE-MP

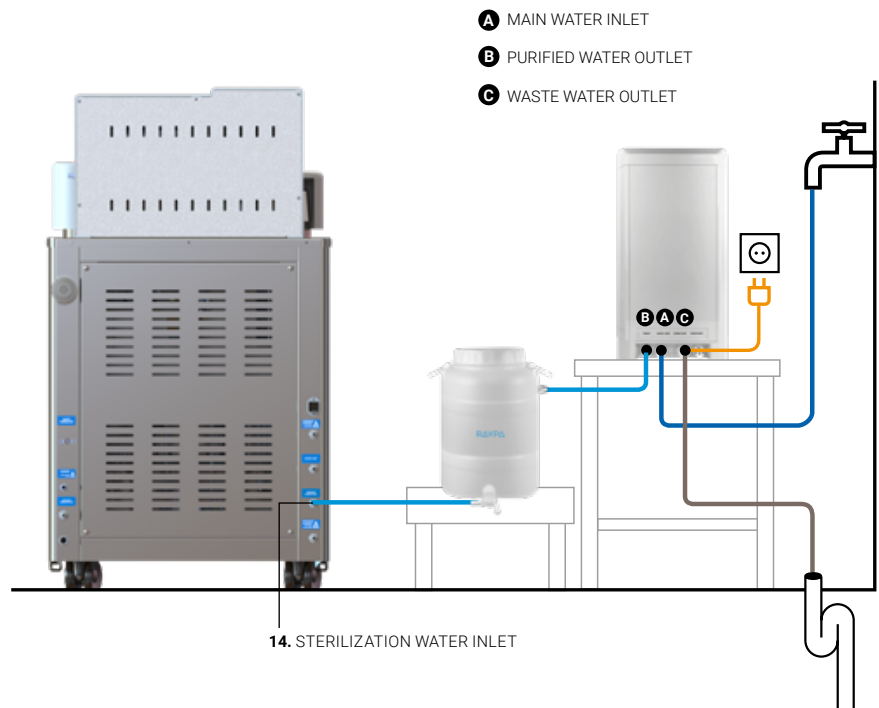
If you don't have a purified water main available where you intend to install the media preparator, we recommend using the ECOPUR-MP water purifier.

The MAIN WATER INLET (A) must be connected from the purifier to a non-purified water main with the provided 1,2m hose provided with the accessory (water temperature from the main must not exceed 38°C or be less than 5°C).

Water must be driven from the PURIFIED WATER OUTLET (B) to a tank and from it to the STERILIZATION WATER INLET (14) of the media preparator using the provided 1,2m hose provided with the accessory.

Waste water must be driven from the WASTE WATER OUTLET (C) to a drain with the 1,2m hose provided with the accessory.

Bear in mind that the inlet and drain hoses in the purifier must always be visible and in perfect working condition.



Read the water purifier manual before installing this accessory.

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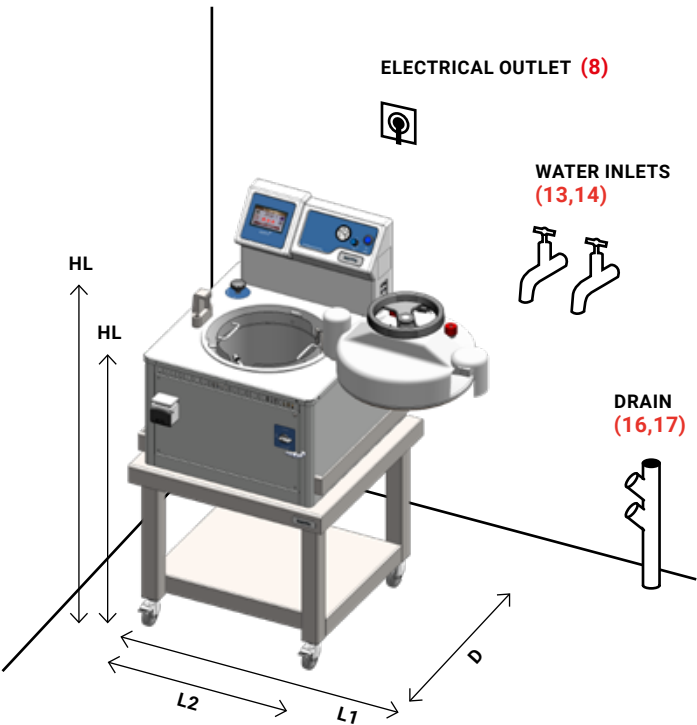


DIMENSIONS TO CONSIDER FOR THE INSTALLATION OF YOUR EQUIPMENT

For safety reasons, the distance between both sides of the media preparator and the wall or any other object must be 100 mm, and between the autoclave and the rear wall must be at least 200 mm.

MODELS	L LENGTH with closed door	L1 LENGTH with maximum door opening	D DEPTH	H HEIGHT	HL LOAD HEIGHT	HD STERILIZATION CHAMBER DRAIN HEIGHT	HE COOLING WATER OUTLET HEIGHT
AE-20-MP-10L+TABLE-MP	700 mm	1138 mm	815 mm	1380 mm	1055 mm	100	330
AE-20-MP + TABLE-MP	700 mm	1138 mm	815 mm	1380 mm	1055 mm	100	330
AE-40-MP	615 mm	1100 mm	815 mm	1100 mm	770 mm	120	350
AE-60-MP	615 mm	1100 mm	815 mm	1315 mm	990 mm	140	365
AE-80-MP	755 mm	1380 mm	935 mm	1230 mm	910 mm	145	365
AE-100-MP	755 mm	1380 mm	935 mm	1375 mm	1050 mm	145	365

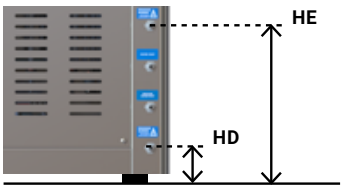
AE-20-MP-10L + TABLE-MP / AE-20-MP + TABLE-MP



CONSIDER:

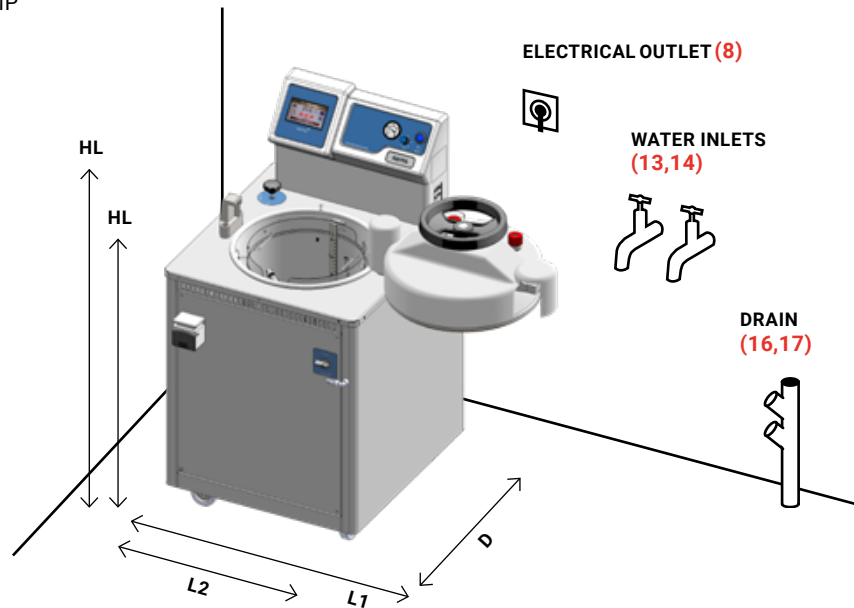
Height and position of the drain connections to the table (optional table height: 600mm).

This heights may vary in a few mm depending on the height you may wish to adjust the legs.



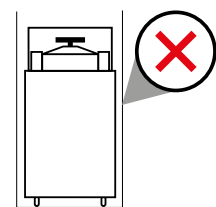
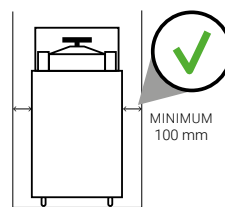
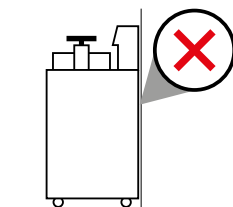
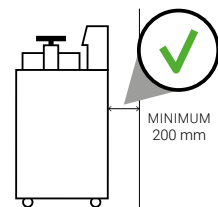
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AE-40/60/80/100-MP



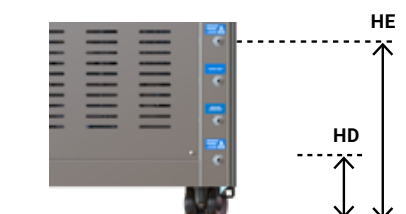
WARNING:

Respect the recommended distances.



CONSIDER:

Height and position of drain connections.



ENVIRONMENTAL CONDITIONS

This media preparator can operate under the following maximum conditions:

- Ambient temperature: 30 °C
- Humidity: 75%
- Altitude: 3.000 meters a. s. l., in case of higher altitudes, consult with our technical team.

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RECOMMENDED MAINTENANCE

Media preparators are like cars: they need regular maintenance for them to work properly, to ensure good condition, prevent deterioration of its components, and maximize their useful life. Frequent cleaning and regular maintenance are essential, as media preparators work at high pressures and temperatures and are therefore subject to a high level of stress.

For clients that perform multiple production cycles each day or work with high-density media, we recommend carrying out maintenance and cleaning tasks such as the automatic cleaning program more frequently.

DAILY MAINTENANCE

Clean the gasket using a clean cotton cloth with a soft vinegar solution (or similar product) to minimize the appearance of lime deposits. Clean the external surfaces using a clean cotton cloth with a little of water and neutral detergent. Dry all surfaces afterwards.

Moreover, at the end of the working day or when changing media type, activate the P1 CLEANING program. By generating continuous steam, this program performs a deep cleaning inside the circuit, ensuring that the lines and conduits of the media preparator are completely clean. To perform this action, you must follow the steps below:



1. Set the dosing selector to "CLOSED" mode.



2. Check that the dispensing line is not pinched by the peristaltic pump or the external dosing station.



3. Place the metal nozzle of the dispensing line inside of the supplied bottle.



4. Select the P1 CLEANING program.

WEEKLY MAINTENANCE

Clean the inner vessel, the sterilization chamber and the accessories.

- 1.** Extract the inner vessel, rinse it with water and clean it using a clean cotton cloth with a little of water and neutral detergent. Dry it afterwards.
- 2.** Clean the sterilization chamber using a clean cotton cloth with a little of water and neutral detergent. Dry it afterwards.
- 3.** Clean all the components, such as the magnetic stirrer, using a clean cotton cloth with a little of water and neutral detergent. Dry it afterwards.



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ANNUAL MAINTENANCE

AE-MP Series media preparators are equipped with a bacteriological filter. The replacement of the bacteriological filter should occur either upon reaching the designated interval or whenever a filter blockage is detected.

Conducting a technical inspection is essential to ensure consistent process safety over time. It is necessary to periodically verify the thermodynamic process parameters (pressure and temperature), ensuring they remain within the accepted minimum limits.



TECHNICAL SUPPORT, ORIGINAL SPARE PARTS AND EXPERIENCED CONSULTING SERVICES

For an optimal functioning of the media preparator, always use original spare parts and have a specialized technician perform relevant maintenance tasks, such as temperature probe calibration or gasket replacement, on a regular basis.

Additionally, we provide a comprehensive range of services to ensure a satisfactory user experience throughout the entire lifespan of our products. These services include support and training programs, guided start-up and qualification services, preventive and corrective maintenance, periodic calibration, technical support and repairs, as well as documentation management.

Should you encounter any issues, have questions, or require further information regarding maintenance of the AE-MP Series media preparator, please don't hesitate to reach out to our technical support service using the following contact details.



Technical support

<https://www.raypa.com/en/contact/>

+34 937 830 720 (Ext. 2109)



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standard media
preparators

