MITSUBISHI ELECTRIC

Air-handling units

AIRME

INSTALLATION, USE AND MAINTENANCE MANUAL

English

Italian is the original language.
The other languages versions are translation of the original.

To ensure safe and correct use, carefully read this manual and make sure to understand all the contained indications and information.

Before carrying out any operation on the machine, you must carefully read this manual and make sure you understand all the instructions and information given.

Keep this manual in a known and easily accessible place to refer to as necessary during the entire life-span of the machine.

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1 GENERAL PROVISIONS

1.1 General information and safety

1.1.1 Scope of the manual

This manual, which is an integral part of the machine (1), was prepared by the Manufacturer to provide the necessary information to all those who are authorised to interact with it during its life span: Buyers, Plant Designers, Carriers, Handling Operators, Installers, Expert Operators, Specialist Technicians and Users.

As well as adopting a code of good practice, the recipients of the manual must read the information with care and apply it scrupulously. Taking a little time to read this information can help avoid risks to the health and safety of persons as well as prevent financial losses.

The information was written by the Manufacturer in the manufacturer's native language (Italian) and is referred to as the "ORIGINAL INSTRUCTIONS". This information is also available into other languages as "TRANSLATION OF THE ORIGINAL INSTRUCTIONS" to meet legislative and/or commercial requirements. The information is valid even if the machine in your possession is not exactly the same as the one referred to.

Keep this manual in a known and easily accessible place to refer to as necessary.

The Manufacturer reserves the right to modify the product without prior notice.
A number of symbols are used to highlight some parts of the text that are of particular importance. These are described below.

(1) in the interest of clarity, this term is used as defined in the Machinery Directive.

2 SYMBOLS

DANGER:
Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

WARNING:
Warning indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

ATTENTION:
Attention indicates a potentially hazardous situation which, if not avoided, could cause minor or moderate damage.

PROHIBITION:
Prohibition to perform certain movements or activities.

OBLIGATION:
This indicates mandatory actions and behaviours to ensure product reliability and safety.

INFORMATION:
Indicates technical information of particular importance which should not be neglected.

NOTICE:
This is used to address practices not connected with possible physical injury.

3 GLOSSARY AND TERMINOLOGY

There are some recurring terms in the manual which are described below in more detail.

Manufacturer: this is the company that has designed and built the machine in line with current laws, implementing all the good construction rules, and paying attention to the health and safety of people interacting with the machine.

Buyer: the person responsible for making the purchase who must supervise the organisation and assignment of duties to ensure that everything is done in compliance with the applicable laws.

Owner: Legal representative of the company, a body, or a natural person who owns the plant where the machine is installed and is responsible for checking compliance with all the safety rules in this manual and the national regulations in force.

Designer: a competent specialist person duly appointed and authorised to draw up a project that takes into account all the legislative and regulatory aspects and code of good practice that apply to the plant as a whole. In any case, as well as comply with the instructions provided by the machine Manufacturer, the designer must consider all the safety aspects for all those persons who will have to interact with the plant during its expected life span.

Installer: specialist competent person duly appointed and authorised to set up the machine or plant according to the project specifications and the recommendations of the machine Manufacturer and in compliance with the laws on safety at work.

User: person authorised to manage use of the machine in compliance with the "instructions for use" and the laws in force concerning safety at work.

Carriers: the persons who take the machine to the destination in a suitable means of transport. They must stow and position the machine in a suitable way to ensure that it cannot move suddenly during transfer. When using devices for loading and unloading, they must observe the instructions that can be found on the machine to ensure their own safety and that of those people with whom they interact in the process.

Handling operators: those who duly set up the machine and implement all the applicable measures so that it can be handled in a safe and correct manner. They are also those persons who, upon receipt of the machine, move it to the place of installation according to the instructions which can be found on the machine. All the above employees must have adequate skills and observe the instructions to ensure their own safety and that of those people with whom they interact in the process.

Maintenance person: The person authorised by the owner to carry out on the machine all operations of regulation and checking expressly indicated in this manual, and which must be strictly followed. His/her work will be limited only to what is clearly allowed.

Expert operator: person appointed and authorised by the User or the Buyer to use the machine and carry out the routine maintenance according to the instructions provided by the Manufacturer. In the event of failures not considered in this manual, the expert operator must request the assistance of a specialist technician.

Specialist technician: The person authorised directly by the Manufacturer to carry out all operations of ordinary and extraordinary maintenance. He/she will also carry out all regulations, checks, repairs and replacement of parts that should become necessary during the life of the machine itself. Outside Italy and those countries where the Manufacturer is not directly present, the Agent is personally responsible for acquiring a suitable number of Technicians, proportional to the area and the business.

Routine maintenance: all the operations that help to ensure the good performance and efficiency of the machine. These operations are planned by the Manufacturer who defines the skills required and the procedures to be implemented.

Extraordinary maintenance: all the operations that help to ensure the good performance and efficiency of the machine. These operations, which are not foreseeable, are not planned by the Manufacturer and must only be carried out by the specialist technician.

3.1 Attached documentation

The following documents are delivered with the unit:

- **Installation, use and maintenance manual (multilingual)**: this manual accompanies the unit and contains the main installation, use and maintenance information.
- **Installation, use and maintenance manual (extended)**: in electronic format and available on the manufacturer's website, it offers detailed information on the installation, use and maintenance steps set out in the multilingual manual supplied with the machine.
- **Refrigeration system diagrams** (paper and electronic format).
- **Hydraulic diagrams** (paper and electronic format).
- **Wiring diagram**: it is specific to the machine in question. It is useful for the persons who will have to carry out work on the electrical system, as it shows the various components and connections.
- **Dimensional drawings:** with handling, lifting and transport information.
- **EC declaration of conformity**: indicates that the machines comply with current European directives.
- **Installation, use and maintenance manual**: it contains the list of operations to carry out.
- **Wiring diagram**: it is specific to the machine in question. It is useful for the persons who will have to carry out work on the electrical system, as it shows the various components and connections.
- **Dimensional and lifting drawings**
- **Assembly instructions for optional items:** they describe the procedures for their installation on the machine.
- **EC declaration of conformity**: indicates that the machines comply with current European directives.
- **Manual of the electronic controller**

The instructions are also available in electronic format on the website https://www.melcohit.com/EN/download/

3.1.1 General safety regulations

The Manufacturer, during design and construction, has paid particular attention to aspects that may pose a risk to the safety and health of people interacting with the machine. The manufacturer has complied with the applicable laws as well as the code of good manufacturing practice. The purpose of this manual is to encourage users to take all due care and thereby avoid any risks. In any case, prudence is required at all times. Safety is also the responsibility of all operators who interact with the machine. Carefully read the instructions in this manual and those applied directly on the machine, and respect those concerning safety in particular.

The inclusion of these machines in a system requires an overall project that must take into account all the “good practice” requirements, as well as the legislative and regulatory provisions. Particular attention must be paid to all the recommendations and technological information provided by the Manufacturer. Do not tamper with, avoid, remove or bypass the safety devices installed on the machine. Failure to observe this requirement could result in serious risks to the health and safety of the persons involved.

The personnel who carry out any kind of work during the entire life span of the machine must have precise technical knowledge, special skills and recognised experience in the specific sector. Non-fulfilment of these requirements could endanger people's health and safety.

Keep the area around the machine in a good state in order to avoid risks to the health and safety of persons during normal use and maintenance of the machine.
Some processes may require the assistance of one or more helpers. In which case, these helpers must be duly trained and informed of the type of work to be carried out in order to avoid risks to their health and safety.

When moving the machine, refer to the information provided on the instructions for use supplied by the manufacturer.

The personnel who carry out loading, unloading and handling of the equipment must have recognised skills and experience in the specific sector and must have absolute command of the lifting equipment to be used.

During installation, observe the clearances indicated by the Manufacturer and take into account all the work activities carried out in the vicinity. Installation must also be carried out in compliance with the laws in force on safety at work.

The machine must be installed and connected in accordance with the Manufacturer's instructions. The person in charge must also take into account all regulatory and legislative requirements, carrying out all installation and connection operations in a workmanlike manner.
After installation and before commissioning the machine, he must perform a general check to make sure that these requirements have been met.

Check that any means of transport to be used for transfer of the machine are suitable for the purpose, and that the machine is loaded and unloaded with care to ensure the safety of the operator and of any other persons who are directly involved. Before transfer, make sure that the machine and its components are duly anchored to the vehicle and do not exceed the maximum

permitted dimensions for transport on the vehicle. Apply any necessary signs.

The operator must have read and understood the information on use of the machine, and have suitable skills and experience for carrying out the work in hand.

Put the machine only to the uses foreseen by the manufacturer. Improper use of the machine may pose risks to the health and safety of the persons and cause financial losses.

The machine has been designed and constructed to meet all the operating conditions indicated by the Manufacturer. Tampering with any of the devices to change the performance can expose the persons to health and safety risks and cause financial losses.

Only use the machine with the safety devices properly installed and in perfect working order. Failure to observe this requirement could result in serious risks to the health and safety of the persons involved.
Keep the machine in perfect working order and perform the routine maintenance recommended by the Manufacturer. Good maintenance can help to ensure the best possible performance, a long useful life and constant compliance with the safety requirements.

Before maintenance and adjustments, activate all the applicable safety devices and provide the personnel and any other people in the vicinity with all necessary information. In particular, cordon off the area and prevent access to all the devices that could, if activated, inadvertently cause danger and pose risks to health and safety.

Maintenance and adjustments must be carried out by authorised persons who must implement all the necessary safety measures according to the procedures set down by the Manufacturer.

All maintenance operations that require specific technical expertise or skills must only be carried out by qualified personnel with recognised experience in the field.

In the case of maintenance in areas that are awkward or dangerous to access, implement appropriate measures to ensure the safety of oneself and of other people, in compliance with the laws in force on safety at work.

This device is not intended for use by people (including children) with reduced physical, sensory or mental capabilities, or without experience and not duly informed, unless they are given adequate supervision and training regarding its use by an experienced operator or specialist technician.
Children should be supervised to make sure that they don't play with the machine.

WARNING:
During the periodic maintenance activities, or in the event of a fault, replace faulty parts with original spare parts. Use the components recommended by the manufacturer, so as to ensure the machine performance and the expected safety level.

PROHIBITION:
The user is strictly prohibited to perform activities such as commissioning, regular/extraordinary maintenance, modifications or anything else not provided for in this Manual.

3.1.1.1 Proper and improper use

Use the unit only for the intended purposes for which it was designed. Any other use relieves Mehits of all liability arising from improper use of the unit.
Air-handling units are designed for civil and industrial air handling.
In case of corrosive and/or explosive operating environments, during the design stage it is essential to make the machine suitable for handling particular flows.
The use of the unit must always and in all cases comply with the design parameters set during the contract negotiations in agreement with the customer. Any other use must be considered improper and dangerous.
Mehits shall not be liable for damage caused by different and unintended uses of the materials provided.

PROHIBITION:
It is strictly forbidden to connect the unit to rooms with naked flames (e.g. smoking rooms or kitchens).

OBLIGATION:
The unit can only be connected to rooms with naked flames (e.g. smoking rooms or kitchens) if it is equipped with the safety damper accessory.

It is forbidden to use the unit:

- In explosive atmosphere
- In a flammable atmosphere
- In a corrosive atmosphere
- In excessively dusty environments
- By untrained personnel
- Not in accordance with current legislation
- If incorrectly installed
- With supply defects
- Without fully or partially following the instructions
- If not properly maintained and/or if non-original spare parts are installed
- With inefficient safety components.

3.1.2 Precautions against residual risks

Prevention of residual mechanical risks

- The unit must be installed outdoors;
- Install the unit according to the instructions set out in this manual;
- Regularly carry out all the maintenance operations foreseen in this manual;
- Wear protective equipment (gloves, eye protection, hard hat, etc.) appropriate for the work being carried out. Do not wear clothing or accessories that can get entangled or sucked in by the air flow. Collect and tie hair to the head before entering the unit;
- Before opening the machine panelling make sure that it is firmly hinged to the machine;
- The fins on heat exchangers and the edges of metal components and panels can cause cuts;
- Do not remove the guards from mobile components while the unit is operating;
- Make sure that mobile component guards are fitted correctly before restarting the unit;
- Fans, motors and belt drives might be running: before accessing these, always wait for them to stop and take appropriate measures to prevent them from starting up;
- Fans, motors and transmissions may be running: before starting the machine make sure to install the appropriate protections to prevent contact with the components during operation;
- The surfaces of the machine and pipes can get very hot or cold and cause the risk of scalding;
- Never exceed the maximum pressure limit (PS) of the water circuit of the unit indicated;
- Before removing parts on the pressurised water circuits, close the section of the piping concerned and drain the fluid gradually to stabilise the pressure at the atmospheric level;
- Do not use your hands to check possible refrigerant leaks.

Prevention of residual electrical risks

- The unit contains live parts that could cause serious injury or death. Only personnel trained in electrical hazards should work on electrical and electronic components, such as electrical panels, motors, wiring. Personnel must wear the appropriate personal protective equipment for the activities at all times, including, for example, gloves, dielectric shoes and face shield, and use dielectric tools;
- Before opening the electrical panel and any other electrical and electronic components, disconnect the unit from the mains using the external switch on the machine;
- Check that the unit has been grounded correctly before starting it;
- Install the machine in a suitable area; in particular, do not install it outdoors if it is intended for use indoors;
- Do not use cables of inadequate cross-section or loose connections. Not even in an emergency, or for limited periods;
- For units with power correction capacitors, wait 3 minutes after removing the electric power supply before accessing the inside of the electrical panel;
- If the unit is equipped with frequency converters (inverters), disconnect it from the mains and wait a minimum of 15 minutes before accessing it to carry out maintenance: the internal components remain live during this period and therefore pose the risk of electric shock.

Prevention of environmental risks

- The machine contains substances and components that are dangerous for the environment, such as refrigerant gases and lubricant.
- The units may only be serviced and disposed of by qualified technicians.

Refrigerant gas:
The cooling circuit of the s-AIRME-G07 units contains fluorinated greenhouse gases covered by the Kyoto Protocol.
The units may only be serviced and disposed of by qualified technicians.
The fluorinated greenhouse gases contained in the cooling circuit must not be disposed of in the atmosphere.
Refrigerant gases must be recovered in accordance with current laws.

Refrigerant	R32
GWP100	675

Lubricant oil:
The cooling compressors and the cooling circuit contain lubricant oil.
The oil must be recovered in accordance with current laws.
Do not disperse the oil in the environment.

For the level of machine noise emissions refer to the Technical Data Sheet of the unit. For the PPE required and any operations/components for the reduction of noise see the table.

Prevention of other residual risks

- Considering the use of R32 refrigerant, it will be necessary to take into account its LFL (Low Flammable Level), equal to 0.307 kg/m3. To reduce the risk of flame, avoid areas with a gas concentration greater than 0.077 kg/m3 (25% LFL).
- To ensured safety with units charged with R32 refrigerant, make sure to observe the minimum area constraints for installation as outlined in Section 1.1.5.1
- Units using R32 refrigerant may only be installed outdoors.
- In order to ensure adequate ventilation to units with R32 charge, it is important that ducts are as indicated in chapter 2.2.15.
- The unit contains pressurised refrigerant gas: the pressurised equipment must not be touched except during maintenance, which must be entrusted to qualified and authorised personnel;
- Connect up the utilities to the unit following the indications set out in this manual and in the pictograms on the panelling of the unit itself;
- The water circuit contains harmful and bio-hazardous substances (e.g. legionella). Do not drink from the hydraulic circuit and make sure the material contained in it does not touch your skin, eyes or clothing.
- In order to avoid an environmental risk, make sure that any leaking fluid is collected in suitable devices in accordance with local regulations;
- If a part needs to be dismantled, make sure it is correctly re-assembled before starting the unit;
- When the rules in force require the installation of fire-fighting systems near the machine, check that these are suitable for extinguishing fires on electrical equipment and on the lubricating oil of the compressor and the refrigerant, as specified on the safety data sheets of these fluids (for example, a CO_2 extinguisher);
- For units equipped with pressure relief valves (safety valves): when these valves are triggered, the refrigerant gas is released at a high temperature/speed; prevent the release of gas from harming people or damaging objects; if necessary, discharge the gas according to the provisions of EN 378-3 and the local regulations in force, particularly making sure to discharge fluids that belong to a safety class other than A1 into safe, open areas (see Tab.3);
- Keep all the safety devices in good working order and check them periodically according to the regulations in force;
- Keep all lubricants in suitably marked containers;

- Do not store inflammable liquids near the unit;
- Solder or braze only empty pipes after removing all traces of lubricant oil; do not use flames or other heat sources in the vicinity of pipes containing cooling fluid;
- Do not use naked flames near the unit;
- The machinery must be installed in structures protected against atmospheric discharge according to the applicable laws and technical standards;
- Do not bend or hit pipes containing pressurised fluids;
- It is not permitted to walk or rest other objects on the machines;
- The user is responsible for overall evaluation of the risk of fire in the place of installation (for example, calculation of the fire load);
- During transport, always secure the unit to the bed of the vehicle to prevent it from moving about and overturning;
- The machine must be transported according to the regulations in force taking into account the characteristics of the fluids in the machine and the description of these on the safety data sheet;
- Inappropriate transport can cause damage to the machine and leaking of the cooling fluid. Before start-up, the machine must be checked for leaks and repaired accordingly;
- The accidental discharge of refrigerant in a closed area can cause a lack of oxygen and, therefore, the risk of asphyxiation: install the machinery in a well ventilated environment according to EN 378-3 and the local regulations in force;
- The installation must comply with the requirements of EN 378-3 and the local regulations in force; in the case of installations indoors, good ventilation must be guaranteed and refrigerant detectors must be fitted when necessary;
- Unless arranged otherwise with MEHITS, the machine be installed in environments where there is no risk of explosion (SAFE AREA).
- The structure of the unit is not designed to withstand the stresses (accelerations) caused by an earthquake

In accordance with the standard EN 60204-1, the handle of the circuit breaker must be easy to access and at a height of between 0.6 and 1.9 metres above the floor. The positioning of the machine in the place of installation must be considered, as if the unit is placed on a raised platform, the height of the switch might no longer be in compliance with the standards. In which case the installer must arrange for a walkway or a similar solution that can allow operators to access the safety device with ease.

Residual risks	Mandatory personal protective equipment						
Residual mechanical risks							
Residual electrical risks							
Other residual risks							
Residual risks for maintenance							

Table 1: *Correspondence between residual risk and corresponding PPE.*

As far as the required PPE and its use, reference should be made to Italian Legislative Decree. 81/08 and IEC 82078-1:2012

3.1.3 List of machine internal symbols

The unit is fitted with the necessary safety signs; here are some examples:

3.1.3.1 Precautions against residual risks

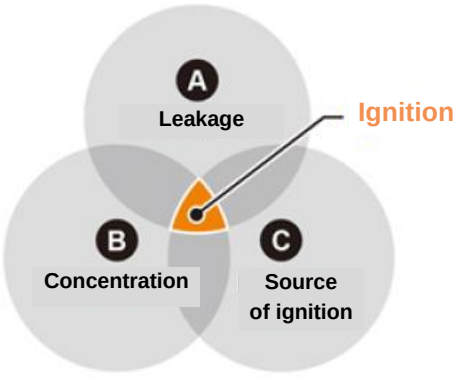
GENERAL

This chapter contains information on the correct handling of units containing flammable fluid R32, with reference to European regulations and directives. National laws and local building codes of each country shall in any case always be respected and applied with priority.
The following information helps the installer to operate in a proper and safe way but cannot replace a comprehensive risk assessment for the installation of the unit. Risk assessment is necessary to determine if there is a direct risk of injury or damage to property in relation to hazards identified at the installation site.

Commissioning, start-up, service, decommissioning and other operations on the unit shall be undertaken by trained and fully qualified personnel, in accordance with applicable local standards and codes of practice.
Cylinders and equipment containing R32 refrigerant require compliance with proper storage and handling procedures in accordance with EN 378-3:2021. Any person operating on the refrigeration circuit must have complete knowledge of the flammable refrigerants and the related risks.
NOTE: the leak detector supplied on request with the unit cannot be considered a safety device. It is to be used only as a means of testing for leaks.

REFRIGERANT PROPERTIES

The R32 refrigerant is classified as mildly flammable and non-toxic (A2L according to ISO/ASHRAE). Mildly flammable means that, under the three conditions shown below, there is a possibility the refrigerant could slowly burn. Removing one of the three conditions does not pose the danger of fire, and can therefore be considered safe.
In any case, most refrigerants emit a toxic gas when a naked flame comes into contact with them.
All flammable refrigerants (class A2L and above) will not ignite if the concentration level stays below the lower flammability limit (LFL).



The flammability risk of MEHITS units with R32 refrigerant is minimal. However, a site risk analysis may need to be carried out depending on the local regulations.

Some of the properties of R32 are listed below:

ASHRAE/ ISO817 Name	**R32**
PED Group	1
ASHRAE Safety Classification	A2L
ODP (Ozone Depletion Potential) (R11 = 1)	0
GWP (Global Warming Potential) AR5 (AR4) (CO2 = 1)	677 (675)
Saturated Liquid Temperature(1) @ 1 atm	-51.65
Practical Limit (kg/m3)	0.061
Lower between the acute toxicity exposure limit (ATEL) and the oxygen deprivation limit (ODL) (kg/m3)	0.30
LFL (Lower Flammability Limit) @ 23 °C, 50% RH (% v/v)	14.4
LFL (kg/m3)	0.307
UFL (Upper Flammability Limit) @ 23 °C, 50% RH (% v/v)	29.3
UFL (kg/m3)	0.559
Density (1) @ 21 °C, 1atm (kg/m3)	2.13
Burning rate (cm/s)	6.7
Minimum ignition energy (mJ) (ASTM E582-13)	30-100
Molecular mass	52
Auto-ignition temperature (°C) (ASTM E659-15)	648
Surface switching on temperature (°C) (ASTM E659-18)	>800

INSTALLATION

- The units can be installed both inside machinery rooms and outdoors.
  For indoor installations such as semi-basements, basements or machinery rooms, these must comply with EN 378-3:2021 - par. 5 requirements (gas detection, ventilation, alarm system, etc.).
- The refrigerant is heavier than air and can stagnate, e.g. below the ground or near the floor, and could reach a flammable concentration. To avoid ignition, maintain a safe work environment by ensuring appropriate ventilation.
- For R32 units where a release of refrigerant can stagnate e.g. below ground, installation must comply with the requirements of EN 378-3:2021 on gas detection, ventilation and alarm systems.
- R32 units located outside must be positioned to avoid the refrigerant from flowing into a building or otherwise endangering people, animals and property, in the event of a leak. Ensure that in the event of leaks no refrigerant penetrates through vents, doors, hatches or similar. When installing units outdoors with shelter, ensure adequate forced or natural ventilation. The installation site must meet the requirements of EN 378-3:2021.

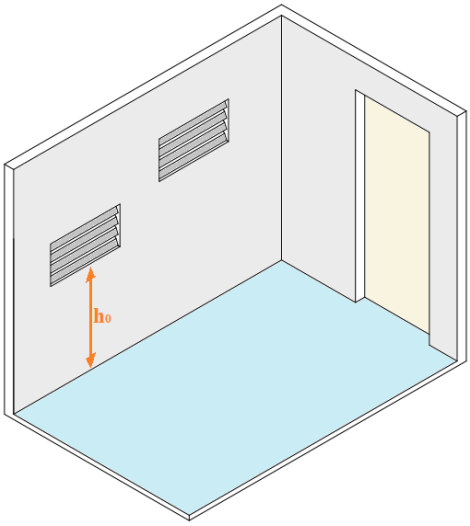
  In addition to arc, spark, hot surfaces, flames, etc. there are other ignition sources that must be taken into consideration:
  - *Electric currents and cathodic corrosion protection*: take care when the unit is installed near railways, electromagnetic induction ovens, large welding systems or other apparatus that can induce stray currents in order to avoid source of ignition.
    Stray currents can flow in electrically conductive systems or parts of systems as:
    - return currents in power generating systems - especially in the vicinity of electric railways and large welding systems - when, for example, conductive electrical system components such as rails and cable sheathing laid underground lower the resistance of this return current path;
    - a result of a short-circuit or of a short-circuit to earth owing to faults in the electrical installations;
    - result of magnetic induction (e.g. near electrical installations with high currents or radio frequencies).

    If parts of a system able to carry stray currents are disconnected, connected or bridged (even in the case of slight potential differences) an explosive atmosphere can be ignited as a result of electric sparks and/or arcs. Moreover, ignition can also occur due to the heating up of these current paths.
    When impressed current cathodic corrosion protection is used, the above mentioned ignition risks are also possible. However, if sacrificial anodes are used, ignition risks due to electric sparks are unlikely, unless the anodes are aluminum or magnesium.
  - *Generated sparks*: due to an imbalance or damage to the bearings, the blades of a fan can crawl or impact against grids and nozzles; friction or impact or abrasion can lead to overheating or detachment of solid particles at high temperature, which could represent a potential source of ignition. Make sure that the fans have no abnormal vibrations or noises; in this case stop the machine and inform the service department.
- The R32 unit is provided with some parts of the refrigerant circuit inside an enclosure: a potentially flammable zone may extend beyond the boundary of the equipment, especially when doors or panels of the unit are opened following a leak. A risk assessment shall be conducted to determine the requirements of the location of the unit to be installed.
- The installer shall provide adequately protected documentation that shall be kept near the operating site of the unit and be clearly readable. It shall, at a minimum, contain details of the flammability of the flammable refrigerant (see EN 378-2, 6.4.3.3).

MINIMUM INSTALLATION AREA FOR UNITS WITH R32

The unit must be selected according to the minimum square footage given in the table below, referring to the smallest room served by the unit at the installation site.

The unit itself cannot be intended as a safety feature for the indoor environment.
The responsibility for proper installation and safety of the environments served by the unit rests entirely with the installer.
For installations that do not comply with the table, the environment must be adapted in accordance with the chapters on additional safety of the EN378-3 standard and the applicable local regulations.
The installer is fully responsible for the sizing activities and the implementation of these additional safety measures.
The minimum surface areas to be respected, referring to the smallest room served by the unit at the installation site, are those corresponding to the external unit with the largest capacity listed in Chapter 3.5.5.
The table below shows the minimum surface area values for each external unit. These are indicated depending on the "h0" reference height, which must be considered starting from the height from the floor of the lowest vent in the room.



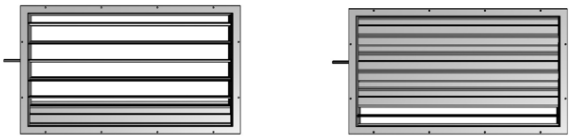
Height of the appliance's ports (*h0* in EN 378-1, Annex C.2)	Minimum indoor installation areas				
	PUZ-ZM / M 100	PUZ-ZM / M 125	PUZ-ZM / M 140	PUZ-ZM / M 200	PUZ-ZM / M 250
[m]	*[m²]*	*[m²]*	*[m²]*	*[m²]*	*[m²]*
0,6	306	306	306	338	394
1	110	110	110	122	142
1,8	34	34	34	38	44
2,2	23	23	23	25	29

SAFETY DEVICE FOR THE USE OF A2L GAS

The units are always equipped with an R32 refrigerant presence sensor at the delivery fan compartment in order to detect possible refrigerant leaks.
Once the leak has been detected, the unit maintains a minimum level of ventilation in order to prevent an excessive accumulation of gas in the conditioned environment, diluting it with the treated air flow.
If the leak occurs when the machine is switched off, the alarm does not allow the unit to start.
The unit is also equipped with a “sensor fault” alarm, which triggers the same actions as described above should a fault be detected in the sensor itself.
Following the detection of refrigerant gas and subsequent alarm, the sensor can be recalibrated (refer to Chapter 3.1.3.2) for later reuse. If the recalibration process fails, the sensor must be replaced.

SAFETY DAMPER ACCESSORY

When the unit has to serve rooms with naked flames (e.g. smoking rooms, kitchens, etc.), in order to guarantee a greater level of safety, the unit is equipped with class 4 dampers (according to EN 751) on the air supply and return, in order to isolate the served environment in the event of a leakage of refrigerant gas.
Once the leakage is detected, the unit is turned OFF and the dampers connecting the unit to the indoor environment are closed, ventilation is stopped and natural ventilation is ensured by opening the external air intake damper and the counter-rotating blade on the supply damper to evacuate the possible refrigerant leakage from the unit.
If the leak occurs when the machine is switched off, the alarm does not allow the unit to start.
The unit is also equipped with a “sensor fault” alarm, which triggers the same actions as described above should a fault be detected in the sensor itself.
In this case, ventilation is stopped and natural ventilation is ensured by opening the external air intake damper and the counter-rotating blade on the supply damper to evacuate the remaining refrigerant leakage.
In the case of the AR machine, where there is no external air intake damper, the supply damper is equipped with a counter-rotating blade, which opens outwards when the machine is not in operation.



UNIT ON = OPEN DAMPER UNIT ON = CLOSED DAMPER

This damper keeps the unit in communication with the outside environment, ensuring the evacuation of any refrigerant leakage.
For further information refer to the dedicated chapter 4.6.

MAINTENANCE

The following precautions must be taken before working on the refrigerant circuit:
- Obtain a permit for work on hot parts (if required);
- Ensure that no flammable materials are stored in the work area and that no ignition sources are present anywhere in the work area;
- Ensure that suitable fire extinguishing equipment (CO2 or dry-powder type) is available within the immediate area;
- Ensure that the work area is properly ventilated before working on the refrigerant circuit or before welding, brazing or soldering work. Use auxiliary ventilation, rated for R32 refrigerant, such as blowers or fans, if necessary, to disperse refrigerant vapours, especially in confined areas. (This recommendation applies, in any case, to all refrigerants);
- Ensure that suitable flammable gas detectors are present and operating to warn workers of a dangerous concentration of refrigerants, especially during any work on hot parts;
- Ensure that the leak detection equipment being used is non-sparking, adequately sealed or intrinsically safe;
- Display appropriate warning signs. For example, “no smoking” and “no entry”;
- Verify that all appropriate and necessary tools and Personal Protective Equipment (PPE) are available;
- Ensure that all maintenance staff have been instructed.

NOTE: When installation permits, it is recommended to remove the equipment from the existing position to a controlled workshop environment where work can be carried out safely.

The following procedure must be followed before working on the refrigerant circuit:
- Remove the refrigerant (specify the residual pressure);
- Purge the circuit with inert gas (e.g. nitrogen);
- Evacuate at a pressure of 30 kPa absolute (or 0.03 MPa);
- Purge again with inert gas (e.g. nitrogen);
- Open the circuit.

- Do not braze pipe and components which contain refrigerant. Before opening the circuit, the refrigerant must be recovered or pumped down. To open the pipelines, use only pipe cutters. Do not use naked flames. Before brazing, check with a refrigerant detector the absence of a potential flammable atmosphere. Refrain from using flames until the work environment is adequately ventilated.
- If compressors or compressor oils are to be removed, evacuate to an acceptable level to ensure that there is no flammable refrigerant remaining within the lubricant.
- Only refrigerant recovery equipment designed for use with flammable refrigerants must be employed. HFC refrigerant recovery machines may not have been assessed for use with flammable refrigerants. If the national rules or regulations permit the refrigerant to be drained, this should be done safely, using a hose, for example, to discharge the refrigerant into the outside atmosphere in a safe area. It should be ensured that an inflammable explosive refrigerant concentration cannot occur near an ignition source or penetrate into a building under any circumstance.
- After any repair work, the safety devices, e.g. refrigerant detectors and mechanical ventilation systems, shall be checked and the results recorded.
- It shall be ensured that any missing or illegible labels on components of the refrigerant circuit are replaced.
- Sources of ignition shall not be used when searching for a refrigerant leak.
- Maintenance and repair requiring the assistance of other skilled personnel shall be carried out under the supervision of the person competent in the use of flammable refrigerants. Any person conducting servicing or maintenance on a plant or associated parts of the equipment shall be competent according to EN 13313.

Persons working on the unit shall have competence in the safety aspects of handling flammable refrigerants, supported by evidence of appropriate training. This will include the following requirements:

- Knowledge of legislation, regulations and standards relating to flammable refrigerants;
- Detailed knowledge of and skill in handling flammable refrigerants, personal protective equipment, refrigerant leakage prevention, handling of cylinders, charging, leak detection, recovery and disposal.

3.1.3.2 Gas presence sensor for units with R32

NOTICE:
Fire and smoke safety takes priority over leakage detection.
The gas presence sensor consists of a sensing element (sensor head) and a control board. Both are located in the delivery fan compartment.

WARNING:
Do not change the position of the sensor elements.

The sensitive layer of the sensor reacts chemically to the presence of R32, changing its conductivity. The oxidation process changes its resistance and thus the measurement, so regular calibrations are necessary. Carry out regular maintenance according to the instructions.

WARNING:
Do not generate electrostatic charges.

Certain substances and gases in the air monitored by the sensor can change the sensitivity of the sensor element or damage it completely.
The currently known substances are:

- Polymerising substances such as ethylene oxide, acrylonitrile, butadiene, styrene, silicone.
- Corrosive substances, such as halogenated hydrocarbons.
- Catalytic poisons, such as sulphur and phosphorus compounds, silicon compounds, metal vapours.
- Organic solvents
- Oils and lubricants

OPERATING CONDITIONS	
Permissible temperature	from -30°C to +60°C
Allowed humidity	from 15 to 90% relative humidity, non-condensing
Permissible pressure	from 0.9 to 1.1 bar
Storage temperature	from 0°C to +50°C
Storage	Up to 12 months
Calibration interval	12 months
Useful life	> 60 months

Type of gas	MSR Unit	MSR	Calibration gas	Measurement range	Relative density
R32	FR08	2080-02	R407c	20-2000 ppm	1.8

WARNING:
Connecting the 24 V fieldbus voltage to the X7 terminal of the local bus may damage the board.

Description of the LEDs

The sensor board has a status LED and two relays.
Open the casing housing the sensor to check the status of the LED.
The two relays detect the presence of gas (alarm) and the presence of faults in the sensor (fault).
The status of the analogue output, relays and signalling LEDs are shown in the following tables:

Start-up and normal operation:

	Service instrument LED			Analogue output	Relay		LED on the board
	Power	Alarm	Fault		Alarm	Fault	
Start up							
Diagnostics (0,5s)				<2 mA	OFF	Fault [4]	
Preheating (300s)			2s 2s 2s	<2 mA	OFF	Fault [4]	2s 2s 2s
Normal operation	[6]	[2]		4-20 mA1	[3]	OK5	

Alarms and other modes:

	Service instrument LED			Analogue output	Relay		LED on the board
	Power	Alarm	Fault		Alarm	Fault	
Maintenance message		[2]		4-20 mA1	[3]	OK5	2s 2s 2s
Special mode	[6]	[7]		2 mA8	[7]	Fault [4]	
Fault detected	[6]	[7]		2 mA	[7]	Fault [4]	
Processor fault				< 1 mA	OFF	Fault [4]	

1 The status depends on the concentration of the measured gas.
2 The status depends on the concentration of the measured gas and the alarm threshold.
3 The status depends on the concentration of the measured gas, alarm threshold and operating mode.
4 Relay off, contact open.
5 Relay on, contact closed.
6 The LED flashes cyclically while sending a message.
7 The previous status remains unchanged.
8 No influence on the analogue signal if the special mode was initiated by the user.

Commissioning

Commissioning must only be carried out by authorised Mitsubishi Electric personnel.
Remove the sensor head cap when commissioning the unit.
Perform a documented functional test without gas.
After the functional test has been completed, record the maintenance carried out in the controller of the Rooftop unit. The next maintenance should be performed within 12 months.

Inspection

Gas sensors must be checked regularly by a competent person. Check the following:

- That the calibration/maintenance interval has not been exceeded, that is, there is no alarm on the unit's keypad.
- Visually inspect sensor, wiring etc.
- Remove dust deposits, especially in the gas inlet.
- Replace the filter at the gas inlet if extremely dirty.

Maintenance and calibration

The Rooftop unit is equipped with two warnings, of impending maintenance and required sensor maintenance.
During maintenance, as well as inspection, perform calibration and the functional test (see below).

Material required

- **Calibration adapter** C2-Z4 to be connected to the cylinder to supply calibration gas to the sensor head.

- **Service-Tool STL06** for calibration/configuration of the sensor**: STL06-PGX2.**
- Alternative to STL06: **PCE06-PGX2** software kit for calibration/configuration of the sensor via PC.
- Calibrated gas with specific concentration (50% of measurement range).
- Flow and pressure regulator ensuring a gas flow rate of 150 ml/min (pressure: 1 bar ± 10%).
- Multimeter.

Calibration procedure

1. Make sure there is no gas present and power the sensor, if not already powered. Pay attention to the preheating time of 300 seconds before taking action.
2. Open the sensor housing.
3. Connect the cable from the Service Tool or PCE06 kit to the dedicated connector on the board (for use of PCE06 connect the USB side to the PC first).

Zero calibration

The potentiometer adjustment in the figure is performed without applying any gas.

- Connect the multimeter to the test pin (shown in red in the figure) and GND earth (pay attention to the connection diagram on the board).
  Measure the voltage with respect to earth (GND). Caution: it is mandatory to use the board earth to avoid an earth loop.
- Adjust with the potentiometer to 300 mV ± 1%.
- Then calibrate the gain.

1. Gain calibration

(!) Pay attention to the gas flow rate supplied to the sensor via the flow regulator.

- Place the calibration adapter on the sensor head

- Screw the flow regulator onto the calibrated gas cylinder and connect the adapter tube to the cylinder
- Calibrate the gain with the Service-Tool STL06 or PCE06 according to the attached manual.

2. After successful calibration, close the flow regulator valve and disconnect the calibration adapter from the sensor head. Wait until the device shows a correct zero value again. Exit Special Mode.
3. Successful calibration must be documented with a report and a label must be placed on the sensor with the date for the next calibration.
4. Record the maintenance done in the controller of the Rooftop unit.

For calibration procedures see the specific supplier's manual available in the reserved area.

NOTICE:
Refer to the MSR calibration manual for STL06 and PCE06.

Functional test

Carry out the functional test during commissioning and during any maintenance or replacement of the sensor.
Application calibrated gas with a concentration above the set alarm threshold.
The alarm relay (gas presence) and the LED must go into alarm status. The unit will display the gas presence alarm on the keypad.

Replacing the sensor cartridge
• Disconnect the sensor head.
• Loosen the locking nut.
• Remove the obsolete sensor head.
• Take the new calibrated sensor head out of the original packaging, check the gas type, measuring range and valid calibration date.
• Insert the sensor head and secure it with the locking nut.
• Connect the sensor head connector to the control board.
• Observe local regulations regarding electronic waste.

Procedure for requesting support

For support, please contact one of the authorised centres (Italy) or our branches/distributors (outside Italy). When requesting technical support concerning the machine, cite the data on the identification plate, and the serial number in particular, and describe the conditions of access and the area around the machine.
In your request, indicate the approximate hours of use and the fault detected. In case of alarm, indicate the alarm message number.

3.2 Machine identification

3.2.1 Designation and identification plate

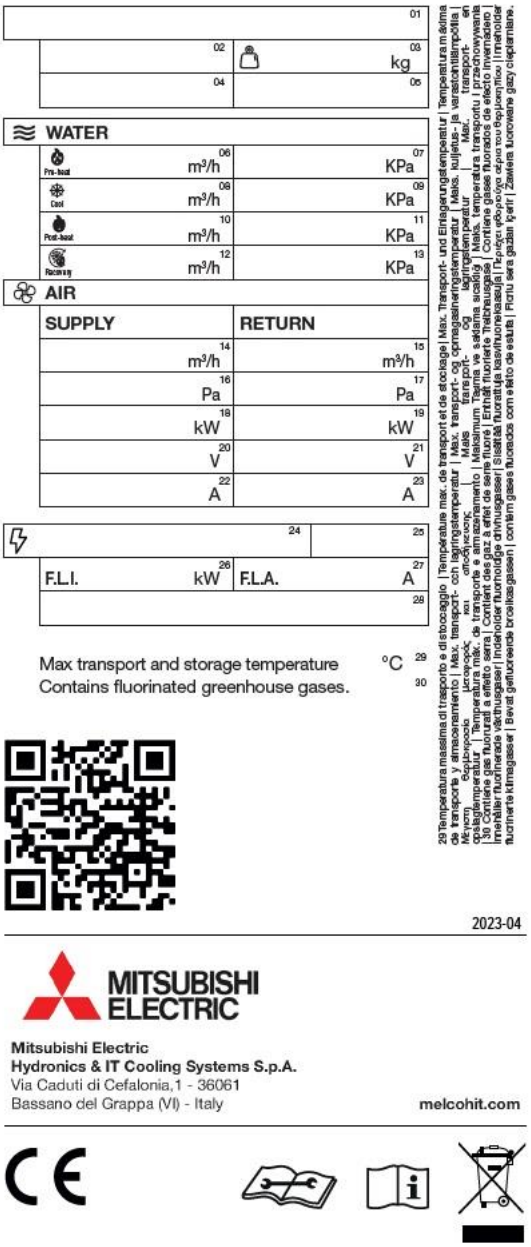
Designation: the alphanumerical code of the machine model, which is given on the identification plate, represents precise technical specifications which are indicated in the figure shown.
Identification plate: the machine type can be found on the label attached directly to the machine**.** The label provides the reference data and all the essential information required to ensure safe operation.

DESIGNATION

s-AIRME-G07 AR C 3000

s-AIRME	**Series** s-AIRME = direct expansion unit w-AIRME = hydronic unit
-G07-	G07 = R32 refrigerant
-AR-	**Version** AR = All Recirculation MF = Mixing and Free cooling HR-P = Heat Recovery Plate
-C-	**Function** C = Standard I = Intermediated B = Booster
-3000-	**Air flow size m3/h** 3000 5000 7500 10000 12500 15000 20000

IDENTIFICATION PLATE



3.3 Storage temperature

When stored for a long period of time, the machine must be placed in a protected environment, at a temperature between -30 °C and 45 °C, without surface condensation and away from direct sunlight.

3.4 Operating limits

3.4.1 Start-up operating limits for s-AIRME-G07

INFORMATION:
The start-up operating range of the s-AIRME-G07 units is as follows (values referring to the temperature on the handling coil):
Operation in cooling:
- Minimum temperature: 15 °C
- Maximum temperature: 32 °C

Operation in heating:
- Minimum temperature: 0 °C (single Mr. Slim) / 5°C (two or more Mr. Slim units)
- Maximum temperature: 28 °C

For s-AIRME-G07 units, check the operating range of the Mr. Slim condensing units in their documentation.

3.4.2 Operating limits

INFORMATION:
The operating range of the AIRME units is as follows (values referring to the temperature of the flow of fresh air entering the machine):
- Minimum temperature: -20 °C
- Maximum temperature: 40 °C

The preheating coil must be used for temperatures below -10 °C.

For s-AIRME-G07 units, check the operating range of the Mr. Slim condensing units in their documentation.

3.4.3 Characteristics of machines with R32 refrigerant

AR FUNCTION version C									
MODEL			s-AIRME 3000	s-AIRME 5000	s-AIRME 7500	s-AIRME 10000	s-AIRME 12500	s-AIRME 15000	s-AIRME 20000
Air flow		[m3/h]	3000	5000	7500	10000	12500	15000	20000
Air flow range		[m3/h]	1000 - 3000	2000-5000	4000-7500	6000-10000	9000-12500	10000-15000	14000-20000
Max useful head (standard configuration)		[Pa]	500	300	500	500	300	300	500
Max useful head (high pressure configuration)		[Pa]	N.O.	500	N.O.	N.O.	500	500	N.O.
Cooling	**Output of RH coil**	[kW]	10,0	20,1	25,0	40,7	45,0	50,0	75,2
Heating	**Output of RH coil**	[kW]	11,2	22,4	26,9	44,8	49,4	53,8	81,0
Power consumption (NOMINAL/MAX)	**Delivery fan(s) (300Pa)**	[kW]	0,64 / 2,5	1,67 / 2,5	1,40 / 4,2	1,79 / 4,2	2,33 / 4,2	3,14 / 4,2	3,71 / 8,4
	Transformers	[kW]	0,5	0,5	0,5	0,5	0,5	0,5	0,5
	Total of s-AIRME	[kW]	1,14 / 3,00	2,17 / 3,00	1,90 / 4,70	2,29 / 4,70	2,83 / 4,70	3,64 / 4,70	4,21 / 8,90
Filtering section			DELIVERY: Flat filter ISOCOARSE_55% + rigid bag filter ePM1_50%.						
Humidification section (accessory)		[kg/h]	8	15	18	25	35	45	65

All the data are for nominal conditions, unit without accessories and filters with medium fouling.

AR FUNCTION version I									
MODEL			s-AIRME 3000	s-AIRME 5000	s-AIRME 7500	s-AIRME 10000	s-AIRME 12500	s-AIRME 15000	s-AIRME 20000
Air flow		[m3/h]	3000	5000	7500	10000	12500	15000	20000
Air flow range		[m3/h]	1500 - 3000	2500-5000	4000-7500	6000-10000	9000-12500	10000-15000	14000-20000
Max useful head (standard configuration)		[Pa]	500	300	500	500	300	300	500
Max useful head (high pressure configuration)		[Pa]	N.O.	500	N.O.	N.O.	500	500	N.O.
Cooling	**Output of RH coil**	[kW]	14,0	25,1	40,3	50,2	60,1	75,1	100
Heating	**Output of RH coil**	[kW]	16,1	27,0	44,8	54,0	67,2	80,8	108
Power consumption (NOMINAL/MAX)	**Delivery fan(s) (300Pa)**	[kW]	0,66 / 2,5	1,68 / 2,5	1,45 / 4,2	1,89 / 4,2	2,43 / 4,2	3,17 / 4,2	3,93 / 8,4
	Transformers	[kW]	0,5	0,5	0,5	0,5	0,5	0,5	0,5
	Total of s-AIRME	[kW]	1,16 / 3,00	2,18 / 3,00	1,95 / 4,70	2,39 / 4,70	2,93 / 4,70	3,67 / 4,70	4,43 / 8,90
Filtering section			DELIVERY: Flat filter ISOCOARSE_55% + rigid bag filter ePM1_50%.						
Humidification section (accessory)			8	15	18	25	35	45	65

All the data are for nominal conditions, unit without accessories and filters with medium fouling.

AR FUNCTION version B									
MODEL			s-AIRME 3000	s-AIRME 5000	s-AIRME 7500	s-AIRME 10000	s-AIRME 12500	s-AIRME 15000	s-AIRME 20000
Air flow		[m3/h]	3000	5000	7500	10000	12500	15000	20000
Air flow range		[m3/h]	2000 - 3000	3500-5000	4600-7500	6000-10000	9000-12500	10000-15000	14000-20000
Max useful head (standard configuration)		[Pa]	500	300	500	500	300	300	500
Max useful head (high pressure configuration)		[Pa]	N.O.	500	N.O.	N.O.	500	500	N.O.
Cooling	**Output of RH coil**	[kW]	20,1	34,0	50,1	60,1	80,1	100	125
Heating	**Output of RH coil**	[kW]	22,4	38,4	54,1	67,2	89,6	108	135
Power consumption (NOMINAL/MAX)	**Delivery fan(s) (300Pa)**	[kW]	0,72 / 2,5	1,73 / 2,5	1,50 / 4,2	1,93 / 4,2	2,49 / 4,2	3,32 / 4,2	3,96 / 8,4
	Transformers	[kW]	0,5	0,5	0,5	0,5	0,5	0,5	0,5
	Total of s-AIRME	[kW]	1,22 / 3,00	2,23 / 3,00	2,00 / 4,70	2,43 / 4,70	2,99 / 4,70	3,82 / 4,70	4,46 / 8,90
Filtering section			DELIVERY: Flat filter ISOCOARSE_55% + rigid bag filter ePM1_50%.						
Humidification section (accessory)			8	15	18	25	35	45	65

All the data are for nominal conditions, unit without accessories and filters with medium fouling.

MF FUNCTION version C(100% fresh air)									
MODEL			s-AIRME 3000	s-AIRME 5000	s-AIRME 7500	s-AIRME 10000	s-AIRME 12500	s-AIRME 15000	s-AIRME 20000
Air flow		[m^3/h]	3000	5000	7500	10000	12500	15000	20000
Air flow range		[m^3/h]	1000 - 3000	2000-5000	4000-7500	6000-10000	9000-12500	10000-15000	14000-20000
Max useful head (standard configuration)		[Pa]	500	300	500	500	300	300	500
Max useful head (high pressure configuration)		[Pa]	N.O.	500	N.O.	N.O.	500	500	N.O.
Cooling	**Output of RH coil**	[kW]	12,1	23,9	29,4	48,4	53,4	58,9	87,6
Heating	**Output of RH coil**	[kW]	11,5	23,0	27,6	45,9	50,6	55,3	83,3
Power consumption (NOMINAL/MAX)	**Delivery fan(s) (300Pa)**	[kW]	0,75 / 2,5	1,78 / 2,5	1,56 / 4,2	2,00 / 4,2	2,56 / 4,2	3,46 / 4,2	4,16 / 8,4
	Transformers	[kW]	0,5	0,5	0,5	0,5	0,5	0,5	0,5
	Total of s-AIRME	[kW]	1,25 / 3,00	2,28 / 3,00	2,06 / 4,70	2,50 / 4,70	3,06 / 4,70	3,96 / 4,70	4,66 / 8,90
Filtering section			DELIVERY: Flat filter ISOCOARSE_55% + rigid bag filter ePM1_50%.						
Humidification section (accessory)			8	15	18	25	35	45	65

All the data are for nominal conditions, unit without accessories and filters with medium fouling.

MF FUNCTION version I (100% fresh air)									
MODEL			s-AIRME 3000	s-AIRME 5000	s-AIRME 7500	s-AIRME 10000	s-AIRME 12500	s-AIRME 15000	s-AIRME 20000
Air flow		[m3/h]	3000	5000	7500	10000	12500	15000	20000
Air flow range		[m3/h]	1500 - 3000	2500-5000	4000-7500	6000-10000	9000-12500	10000-15000	14000-20000
Max useful head (standard configuration)		[Pa]	500	300	500	500	300	300	500
Max useful head (high pressure configuration)		[Pa]	N.O.	500	N.O.	N.O.	500	500	N.O.
Cooling	**Output of RH coil**	[kW]	16,8	29,8	48,8	59,2	72,2	88,8	118
Heating	**Output of RH coil**	[kW]	16,5	27,7	45,9	55,5	68,9	82,9	111
Power consumption (NOMINAL/MAX)	**Delivery fan(s) (300Pa)**	[kW]	0,77 / 2,5	1,79 / 2,5	1,62 / 4,2	2,11 / 4,2	2,66 / 4,2	3,49 / 4,2	4,39 / 8,4
	Transformers	[kW]	0,5	0,5	0,5	0,5	0,5	0,5	0,5
	Total of s-AIRME	[kW]	1,27 / 3,00	2,29 / 3,00	2,12 / 4,70	2,61 / 4,70	3,16 / 4,70	3,99 / 4,70	4,89 / 8,90
Filtering section			DELIVERY: Flat filter ISOCOARSE_55% + rigid bag filter ePM1_50%.						
Humidification section (accessory)		[kg/h]	8	15	18	25	35	45	65

All the data are for nominal conditions, unit without accessories and filters with medium fouling.

MF FUNCTION version B (100% fresh air)									
MODEL			s-AIRME 3000	s-AIRME 5000	s-AIRME 7500	s-AIRME 10000	s-AIRME 12500	s-AIRME 15000	s-AIRME 20000
Air flow		[m3/h]	3000	5000	7500	10000	12500	15000	20000
Air flow range			2000 - 3000	3500-5000	4600-7500	6000-10000	9000-12500	10000-15000	14000-20000
Max useful head (standard configuration)		[Pa]	500	300	500	500	300	300	500
Max useful head (high pressure configuration)		[Pa]	N.O.	500	N.O.	N.O.	500	500	N.O.
Cooling	**Output of RH coil**	[kW]	24,6	41,3	60,1	73,0	97,3	120	150
Heating	**Output of RH coil**	[kW]	22,8	39,3	55,4	68,8	91,7	111	139
Power consumption (NOMINAL/MAX)	**Delivery fan(s) (300Pa)**	[kW]	0,83 / 2,5	1,84 / 2,5	1,67 / 4,2	2,14 / 4,2	2,73 / 4,2	3,65 / 4,2	4,42 / 8,4
	Transformers	[kW]	0,5	0,5	0,5	0,5	0,5	0,5	0,5
	Total of s-AIRME	[kW]	1,33 / 3,00	2,34 / 3,00	2,17 / 4,70	2,64 / 4,70	3,23 / 4,70	4,15 / 4,70	4,92 / 8,90
Filtering section			DELIVERY: Flat filter ISOCOARSE_55% + rigid bag filter ePM1_50%.						
Humidification section (accessory)			8	15	18	25	35	45	65

All the data are for nominal conditions, unit without accessories and filters with medium fouling.

HR-P FUNCTION version C								
MODEL			s-AIRME 3000	s-AIRME 5000	s-AIRME 7500	s-AIRME 10000	s-AIRME 12500	s-AIRME 15000
Air flow		[m3/h]	3000	5000	7500	10000	12500	15000
Air flow range			2000 - 3000	3250-5000	4250-7500	6200-10000	7850-12500	8450-15000
Max useful head (standard configuration)		[Pa]	500	300	500	300	300	500
Max useful head (high pressure configuration)		[Pa]	N.O.	500	N.O.	500	500	N.O.
Cooling	**Output of RH coil**	[kW]	19,9	32,2	44,6	64,9	79,8	89,5
	Output of Heat recovery unit	[kW]	5,93	9,85	15,1	20,0	24,9	29,7
	Total output	[kW]	25,9	42,0	59,7	84,9	105	119
Heating	**Output of RH coil**	[kW]	22,4	36,6	49,4	71,7	89,6	98,6
	Output of Heat recovery unit	[kW]	9,54	15,9	24,4	32,3	40,2	51,8
	Total output	[kW]	31,9	52,4	73,8	104,0	130,0	150
Cooling	**Dry temperature ratio**	[%]	73,8	73,6	75,4	74,7	74,4	73,9
Heating	**Dry temperature ratio**	[%]	73	73,1	74,8	74,1	73,8	73,9
Power consumption (NOMINAL/MAX)	**Delivery fan(s) (300Pa)**	[kW]	0,96 / 2,5	2,06 / 2,5	2,18 / 4,2	2,49 / 4,2	3,28 / 4,2	3,88 / 8,4
	Return fan(s) (300Pa)	[kW]	0,76 / 2,5	1,76 / 2,5	1,52 / 4,2	1,83 / 4,2	2,53 / 4,2	2,69 / 8,4
	Transformers	[kW]	0,5	0,7	0,7	0,7	1	1
	Total of s-AIRME	[kW]	2,22 / 5,5	4,52 / 5,7	4,4 / 7,80	5,02 / 9,10	6,81 / 9,40	7,57 / 17,80
Filtering section			DELIVERY: Flat filter ISOCOARSE_55% + rigid bag filter ePM1_50%. RETURN: flat filter ISOCOARSE_55%					
Humidification section (accessory)			8	15	18	25	35	45

All the data are for nominal conditions, unit without accessories and filters with medium fouling.

HR-P FUNCTION version I								
MODEL			s-AIRME 3000	s-AIRME 5000	s-AIRME 7500	s-AIRME 10000	s-AIRME 12500	s-AIRME 15000
Air flow		[m3/h]	3000	5000	7500	10000	12500	15000
Air flow range			2300 - 3000	3950-5000	5900-7500	7850-10000	9100-12500	11750-15000
Max useful head (standard configuration)		[Pa]	500	300	500	300	300	500
Max useful head (high pressure configuration)		[Pa]	N.O.	500	N.O.	500	500	N.O.
Cooling	**Output of RH coil**	[kW]	24,9	39,7	59,9	79,5	99,3	119
	Output of Heat recovery unit	[kW]	5,93	9,85	15,1	20,0	24,9	29,7
	Total output	[kW]	30,8	49,5	75	99,5	124	148
Heating	**Output of RH coil**	[kW]	27,3	44,8	67,4	89,6	108	134
	Output of Heat recovery unit	[kW]	9,54	15,9	24,4	32,3	40,2	51,8
	Total output	[kW]	36,8	60,7	91,9	122	148	186
Cooling	**Dry temperature ratio**	[%]	73,8	73,6	75,4	74,7	74,4	73,9
Heating	**Dry temperature ratio**	[%]	73,0	73,1	74,8	74,1	73,8	73,9
Power consumption (NOMINAL/MAX)	**Delivery fan(s) (300Pa)**	[kW]	0,98 / 2,5	2,07 / 2,5	2,23 / 4,2	2,60 / 4,2	3,39 / 4,2	3,92 / 8,4
	Return fan(s) (300Pa)	[kW]	0,76 / 2,5	1,76 / 2,5	1,52 / 4,2	1,83 / 4,2	2,53 / 4,2	2,69 / 8,4
	Transformers	[kW]	0,5	0,7	0,7	0,7	1	1
	Total of s-AIRME	[kW]	2,24 / 5,5	4,53 / 5,7	4,45 / 7,80	5,13 / 9,10	6,92 / 9,40	7,61 / 17,80
Filtering section			DELIVERY: Flat filter ISOCOARSE_55% + rigid bag filter ePM1_50%. RETURN: flat filter ISOCOARSE_55%					
Humidification section (accessory)			8	15	18	25	35	45

All the data are for nominal conditions, unit without accessories and filters with medium fouling.

HR-P FUNCTION version B								
MODEL			s-AIRME 3000	s-AIRME 5000	s-AIRME 7500	s-AIRME 10000	s-AIRME 12500	s-AIRME 15000
Air flow		[m3/h]	3000	5000	7500	10000	12500	15000
Air flow range			2800 - 3000	4550-5000	6500-7500	9100-10000	11350-12500	13600-15000
Max useful head (standard configuration)			500	300	500	300	300	500
Max useful head (high pressure configuration)			N.O.	500	N.O.	500	500	N.O.
Cooling	**Output of RH coil**	[kW]	27,8	50,2	69,3	99,5	124	148
	Output of Heat recovery unit	[kW]	5,93	9,85	15,1	20	24,9	29,7
	Total output	[kW]	33,7	60,1	84,5	119	149	178
Heating	**Output of RH coil**	[kW]	32,6	54,2	76,3	109	135	162
	Output of Heat recovery unit	[kW]	9,54	15,9	24,4	32,3	40,2	51,8
	Total output	[kW]	42,1	70	101	141	175	214
Cooling	**Dry temperature ratio**	[%]	73,8	73,6	75,4	74,7	74,4	73,9
Heating	**Dry temperature ratio**	[%]	73,0	73,1	74,8	74,1	73,8	73,9
Power consumption (NOMINAL/MAX)	**Delivery fan(s) (300Pa)**	[kW]	1,04 / 2,5	2,12 / 2,5	2,29 / 4,2	2,64 / 4,2	3,46 / 4,2	4,11 / 8,4
	Return fan(s) (300Pa)	[kW]	0,76 / 2,5	1,76 / 2,5	1,52 / 4,2	1,83 / 4,2	2,53 / 4,2	2,69 / 8,4
	Transformers	[kW]	0,5	0,7	0,7	0,7	1	1
	Total of s-AIRME	[kW]	2,30 / 5,5	4,58 / 5,7	4,51 / 7,80	5,17 / 9,10	6,99 / 9,40	7,80 / 17,80
Filtering section			DELIVERY: Flat filter ISOCOARSE_55% + rigid bag filter ePM1_50%. RETURN: flat filter ISOCOARSE_55%					
Humidification section (accessory)			8	15	18	25	35	45

All the data are for nominal conditions, unit without accessories and filters with medium fouling.

NOMINAL CONDITIONS				
SUMMER				
Indoor	DRY BULB TEMPERATURE [°C]	27	R.H. [%]	50
Outdoor	DRY BULB TEMPERATURE [°C]	35	R.H. [%]	50
WINTER				
Indoor	DRY BULB TEMPERATURE [°C]	20	R.H. [%]	50
Outdoor	DRY BULB TEMPERATURE [°C]	7	R.H. [%]	85

3.4.4 Machine characteristics with hydronic main coil

FUNCTION AR version C									
MODEL			w-AIRME 3000	w-AIRME 5000	w-AIRME 7500	w-AIRME 10000	w-AIRME 12500	w-AIRME 15000	w-AIRME 20000
Air flow		[m3/h]	3000	5000	7500	10000	12500	15000	20000
Air flow range		[m3/h]	1000 - 3000	2000-5000	4000-7500	5000-10000	6000-12500	8000-15000	10000-20000
Max useful head (standard configuration)		[Pa]	500	300	500	500	300	300	500
Max useful head (high pressure configuration)		[Pa]	N.O.	500	N.O.	N.O.	500	500	N.O.
Cooling	**Output of H2O coil**	[kW]	11.3	24.8	26.5	48	51.9	52.3	80.2
Heating	**Output of H2O coil**	[kW]	13.9	28.6	33.3	55.2	63.3	66.5	99.7
Power consumption (NOMINAL/MAX)	**Delivery fan(s) (300Pa)**	[kW]	0.64 / 2.5	1.67 / 2.5	1.40 / 4.2	1.79 / 4.2	2.33 / 4.2	3.14 / 4.2	3.71 / 8.4
	Transformers	[kW]	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	Total w-AIRME	[kW]	1.14 / 3.00	2.17 / 3.00	1.90 / 4.70	2.29 / 4.70	2.83 / 4.70	3.64 / 4.70	4.21 / 8.90
Filtering section			DELIVERY: Flat filter ISOCOARSE_55% + rigid pocket filter ePM1_50%.						
Humidification section (accessory)		[kg/h]	8	15	18	25	35	45	65

All the data are for nominal conditions, unit without accessories and filters with medium fouling.

FUNCTION AR version I									
MODEL			w-AIRME 3000	w-AIRME 5000	w-AIRME 7500	w-AIRME 10000	w-AIRME 12500	w-AIRME 15000	w-AIRME 20000
Air flow		[m3/h]	3000	5000	7500	10000	12500	15000	20000
Air flow range		[m3/h]	1000 - 3000	2000-5000	4000-7500	5000-10000	6000-12500	8000-15000	10000-20000
Max useful head (standard configuration)		[Pa]	500	300	500	500	300	300	500
Max useful head (high pressure configuration)		[Pa]	N.O.	500	N.O.	N.O.	500	500	N.O.
Cooling	**Output of H2O coil**	[kW]	17.2	30.3	41	52.7	67.9	75.1	105
Heating	**Output of H2O coil**	[kW]	19.1	32.8	46.2	61.2	77.1	86	123
Power consumption (NOMINAL/MAX)	**Delivery fan(s) (300Pa)**	[kW]	0.66 / 2.5	1.68 / 2.5	1.45 / 4.2	1.89 / 4.2	2.43 / 4.2	3.17 / 4.2	3.93 / 8.4
	Transformers	[kW]	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	Total w-AIRME	[kW]	1.16 / 3.00	2.18 / 3.00	1.95 / 4.70	2.39 / 4.70	2.93 / 4.70	3.67 / 4.70	4.43 / 8.90
Filtering section			DELIVERY: Flat filter ISOCOARSE_55% + rigid pocket filter ePM1_50%.						
Humidification section (accessory)		[kg/h]	8	15	18	25	35	45	65

All the data are for nominal conditions, unit without accessories and filters with medium fouling.

FUNCTION AR version B									
MODEL			w-AIRME 3000	w-AIRME 5000	w-AIRME 7500	w-AIRME 10000	w-AIRME 12500	w-AIRME 15000	w-AIRME 20000
Air flow		[m3/h]	3000	5000	7500	10000	12500	15000	20000
Air flow range		[m3/h]	1000 - 3000	2000-5000	4000-7500	5000-10000	6000-12500	8000-15000	10000-20000
Max useful head (standard configuration)		[Pa]	500	300	500	500	300	300	500
Max useful head (high pressure configuration)		[Pa]	N.O.	500	N.O.	N.O.	500	500	N.O.
Cooling	**Output of H2O coil**	[kW]	20.2	34.6	51.4	61.7	80.4	101	136
Heating	**Output of H2O coil**	[kW]	21.1	35.2	52.7	68.2	87	106	141
Power consumption (NOMINAL/MAX)	**Delivery fan(s) (300Pa)**	[kW]	0.72 / 2.5	1.73 / 2.5	1.50 / 4.2	1.93 / 4.2	2.49 / 4.2	3.32 / 4.2	3.96 / 8.4
	Transformers	[kW]	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	Total w-AIRME	[kW]	1.22 / 3.00	2.23 / 3.00	2.00 / 4.70	2.43 / 4.70	2.99 / 4.70	3.82 / 4.70	4.46 / 8.90
Filtering section			DELIVERY: Flat filter ISOCOARSE_55% + rigid pocket filter ePM1_50%.						
Humidification section (accessory)		[kg/h]	8	15	18	25	35	45	65

All the data are for nominal conditions, unit without accessories and filters with medium fouling.

FUNCTION MF version C (100% fresh air)									
MODEL			w-AIRME 3000	w-AIRME 5000	w-AIRME 7500	w-AIRME 10000	w-AIRME 12500	w-AIRME 15000	w-AIRME 20000
Air flow		[m^3/h]	3000	5000	7500	10000	12500	15000	20000
Air flow range		[m^3/h]	1000 - 3000	2000-5000	4000-7500	5000-10000	6000-12500	8000-15000	10000-20000
Max useful head (standard configuration)		[Pa]	500	300	500	500	300	300	500
Max useful head (high pressure configuration)		[Pa]	N.O.	500	N.O.	N.O.	500	500	N.O.
Cooling	**Output of H2O coil**	[kW]							
Heating	**Output of H2O coil**	[kW]							
Power consumption (NOMINAL/MAX)	**Delivery fan(s) (300Pa)**	[kW]	0.75 / 2.5	1.78 / 2.5	1.56 / 4.2	2.00 / 4.2	2.56 / 4.2	3.46 / 4.2	4.16 / 8.4
	Transformers	[kW]	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	Total w-AIRME	[kW]	1.25 / 3.00	2.28 / 3.00	2.06 / 4.70	2.50 / 4.70	3.06 / 4.70	3.96 / 4.70	4.66 / 8.90
Filtering section			DELIVERY: Flat filter ISOCOARSE_55% + rigid pocket filter ePM1_50%.						
Humidification section (accessory)		[kg/h]	8	15	18	25	35	45	65

All the data are for nominal conditions, unit without accessories and filters with medium fouling

FUNCTION MF version I (100% fresh air)									
MODEL			w-AIRME 3000	w-AIRME 5000	w-AIRME 7500	w-AIRME 10000	w-AIRME 12500	w-AIRME 15000	w-AIRME 20000
Air flow		[m3/h]	3000	5000	7500	10000	12500	15000	20000
Air flow range		[m3/h]	1000 - 3000	2000-5000	4000-7500	5000-10000	6000-12500	8000-15000	10000-20000
Max useful head (standard configuration)		[Pa]	500	300	500	500	300	300	500
Max useful head (high pressure configuration)		[Pa]	N.O.	500	N.O.	N.O.	500	500	N.O.
Cooling	**Output of H2O coil**	[kW]							
Heating	**Output of H2O coil**	[kW]							
Power consumption (NOMINAL/MAX)	**Delivery fan(s) (300Pa)**	[kW]	0.77 / 2.5	1.79 / 2.5	1.62 / 4.2	2.11 / 4.2	2.66 / 4.2	3.49 / 4.2	4.39 / 8.4
	Transformers	[kW]	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	Total w-AIRME	[kW]	1.27 / 3.00	2.29 / 3.00	2.12 / 4.70	2.61 / 4.70	3.16 / 4.70	3.99 / 4.70	4.89 / 8.90
Filtering section			DELIVERY: Flat filter ISOCOARSE_55% + rigid pocket filter ePM1_50%.						
Humidification section (accessory)		[kg/h]	8	15	18	25	35	45	65

All the data are for nominal conditions, unit without accessories and filters with medium fouling

FUNCTION MF version B (100% fresh air)									
MODEL			w-AIRME 3000	w-AIRME 5000	w-AIRME 7500	w-AIRME 10000	w-AIRME 12500	w-AIRME 15000	w-AIRME 20000
Air flow		[m3/h]	3000	5000	7500	10000	12500	15000	20000
Air flow range		[m3/h]	1000 - 3000	2000-5000	4000-7500	5000-10000	6000-12500	8000-15000	10000-20000
Max useful head (standard configuration)		[Pa]	500	300	500	500	300	300	500
Max useful head (high pressure configuration)		[Pa]	N.O.	500	N.O.	N.O.	500	500	N.O.
Cooling	**Output of H2O coil**	[kW]							
Heating	**Output of H2O coil**	[kW]							
Power consumption (NOMINAL/MAX)	**Delivery fan(s) (300Pa)**	[kW]	0.83 / 2.5	1.84 / 2.5	1.67 / 4.2	2.14 / 4.2	2.73 / 4.2	3.65 / 4.2	4.42 / 8.4
	Transformers	[kW]	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	Total w-AIRME	[kW]	1.33 / 3.00	2.34 / 3.00	2.17 / 4.70	2.64 / 4.70	3.23 / 4.70	4.15 / 4.70	4.92 / 8.90
Filtering section			DELIVERY: Flat filter ISOCOARSE_55% + rigid pocket filter ePM1_50%.						
Humidification section (accessory)		[kg/h]	8	15	18	25	35	45	65

All the data are for nominal conditions, unit without accessories and filters with medium fouling

FUNCTION HR-P version C								
MODEL			w-AIRME 3000	w-AIRME 5000	w-AIRME 7500	w-AIRME 10000	w-AIRME 12500	w-AIRME 15000
Air flow		[m3/h]	3000	5000	7500	10000	12500	15000
Air flow range		[m3/h]	1000 - 3000	2000-5000	4000-7500	5000-10000	6000-12500	8000-15000
Max useful head (standard configuration)		[Pa]	500	300	500	300	300	500
Max useful head (high pressure configuration)		[Pa]	N.O.	500	N.O.	500	500	N.O.
Cooling	**Output of H2O coil**	[kW]						
	Output of Heat recovery unit	[kW]						
	Total output	[kW]						
Heating	**Output of H2O coil**	[kW]						
	Output of Heat recovery unit	[kW]						
	Total output	[kW]						
Cooling	**Dry temperature ratio**	[%]	73.8	73.6	75.4	74.7	74.4	73.9
Heating	**Dry temperature ratio**	[%]	73	73.1	74.8	74.1	73.8	73.9
Power consumption (NOMINAL/MAX)	**Delivery fan(s) (300Pa)**	[kW]	0.96 / 2.5	2.06 / 2.5	2.18 / 4.2	2.49 / 4.2	3.28 / 4.2	3.88 / 8.4
	Return fan(s) (300Pa)	[kW]	0.76 / 2.5	1.76 / 2.5	1.52 / 4.2	1.83 / 4.2	2.53 / 4.2	2.69 / 8.4
	Transformers	[kW]	0.5	0.7	0.7	0.7	1	1
	Total w-AIRME	[kW]	2.22 / 5.5	4.52 / 5.7	4.4 / 7.80	5.02 / 9.10	6.81 / 9.40	7.57 / 17.80
Filtering section			DELIVERY: Flat filter ISOCOARSE_55% + rigid pocket filter ePM1_50%. RETURN: flat filter ISOCOARSE_55%					
Humidification section (accessory)		[kg/h]	8	15	18	25	35	45

All the data are for nominal conditions, unit without accessories and filters with medium fouling

FUNCTION HR-P version I								
MODEL			w-AIRME 3000	w-AIRME 5000	w-AIRME 7500	w-AIRME 10000	w-AIRME 12500	w-AIRME 15000
Air flow		[m3/h]	3000	5000	7500	10000	12500	15000
Air flow range		[m3/h]	1000 - 3000	2000-5000	4000-7500	5000-10000	6000-12500	8000-15000
Max useful head (standard configuration)		[Pa]	500	300	500	300	300	500
Max useful head (high pressure configuration)		[Pa]	N.O.	500	N.O.	500	500	N.O.
Cooling	**Output of H2O coil**	[kW]						
	Output of Heat recovery unit	[kW]						
	Total output	[kW]						
Heating	**Output of H2O coil**	[kW]						
	Output of Heat recovery unit	[kW]						
	Total output	[kW]						
Cooling	**Dry temperature ratio**	[%]	73.8	73.6	75.4	74.7	74.4	73.9
Heating	**Dry temperature ratio**	[%]	73.0	73.1	74.8	74.1	73.8	73.9
Power consumption (NOMINAL/MAX)	**Delivery fan(s) (300Pa)**	[kW]	0.98 / 2.5	2.07 / 2.5	2.23 / 4.2	2.60 / 4.2	3.39 / 4.2	3.92 / 8.4
	Return fan(s) (300Pa)	[kW]	0.76 / 2.5	1.76 / 2.5	1.52 / 4.2	1.83 / 4.2	2.53 / 4.2	2.69 / 8.4
	Transformers	[kW]	0.5	0.7	0.7	0.7	1	1
	Total w-AIRME	[kW]	2.24 / 5.5	4.53 / 5.7	4.45 / 7.80	5.13 / 9.10	6.92 / 9.40	7.61 / 17.80
Filtering section			DELIVERY: Flat filter ISOCOARSE_55% + rigid pocket filter ePM1_50%. RETURN: flat filter ISOCOARSE_55%					
Humidification section (accessory)		[kg/h]	8	15	18	25	35	45

All the data are for nominal conditions, unit without accessories and filters with medium fouling

FUNCTION HR-P version B								
MODEL			w-AIRME 3000	w-AIRME 5000	w-AIRME 7500	w-AIRME 10000	w-AIRME 12500	w-AIRME 15000
Air flow		[m3/h]	3000	5000	7500	10000	12500	15000
Air flow range		[m3/h]	1000 - 3000	2000-5000	4000-7500	5000-10000	6000-12500	8000-15000
Max useful head (standard configuration)		[Pa]	500	300	500	300	300	500
Max useful head (high pressure configuration)		[Pa]	N.O.	500	N.O.	500	500	N.O.
Cooling	**Output of H2O coil**	[kW]						
	Output of Heat recovery unit	[kW]						
	Total output	[kW]						
Heating	**Output of H2O coil**	[kW]						
	Output of Heat recovery unit	[kW]						
	Total output	[kW]						
Cooling	**Dry temperature ratio**	[%]	73.8	73.6	75.4	74.7	74.4	73.9
Heating	**Dry temperature ratio**	[%]	73.0	73.1	74.8	74.1	73.8	73.9
Power consumption (NOMINAL/MAX)	**Delivery fan(s) (300Pa)**	[kW]	1.04 / 2.5	2.12 / 2.5	2.29 / 4.2	2.64 / 4.2	3.46 / 4.2	4.11 / 8.4
	Return fan(s) (300Pa)	[kW]	0.76 / 2.5	1.76 / 2.5	1.52 / 4.2	1.83 / 4.2	2.53 / 4.2	2.69 / 8.4
	Transformers	[kW]	0.5	0.7	0.7	0.7	1	1
	Total w-AIRME	[kW]	2.30 / 5.5	4.58 / 5.7	4.51 / 7.80	5.17 / 9.10	6.99 / 9.40	7.80 / 17.80
Filtering section			DELIVERY: Flat filter ISOCOARSE_55% + rigid pocket filter ePM1_50%. RETURN: flat filter ISOCOARSE_55%					
Humidification section (accessory)		[kg/h]	8	15	18	25	35	45

All the data are for nominal conditions, unit without accessories and filters with medium fouling

NOMINAL CONDITIONS				
SUMMER				
Indoor	DRY BULB TEMPERATURE [°C]	27	R.H. [%]	50
Outdoor	DRY BULB TEMPERATURE [°C]	35	R.H. [%]	50
WINTER				
Indoor	DRY BULB TEMPERATURE [°C]	20	R.H. [%]	50
Outdoor	DRY BULB TEMPERATURE [°C]	7	R.H. [%]	85

3.5 General description

3.5.1 General description

In order to ensure maximum performance and guarantee the safety of people, the product and the environment, before installation it will be necessary to complete a full design of the system within which the machine will be installed, assessing all the predicted and foreseeable critical points during its life, from installation to dismantling.

The units in the AIRME series control the external air intake and are characterised by exceptional energy efficiency and a high level of configurability.
These units have a rotary heat recovery system and energy efficient fans selected in accordance with the European Ecodesign regulation 1253/2014 and are therefore compliant with the ERP 2018 directive.

The s-AIRME-G07 units are based on efficient direct expansion technology, where ecological R32 refrigerants are supplied to the internal coil, in combination with Mitsubishi Mr. Slim outdoor heat pump units.
The electrical power and control panel includes a microprocessor with preloaded exclusive management software that integrates all the characteristic functions of the machine. The panel provides for the integration of one or more Mitsubishi PAC-IF 013 electronic boards, which allow communication to and from Mr. Slim Mitsubishi outdoor units, to ensure their operation always at maximum efficiency.

The w-AIRME units have the same structure but are based on a hydronic coil and are designed to be used in combination with cold-only chillers or reversible chiller/heat pump units as cold or hot water sources.

WARNING:
The guarantee is rendered null and void when:
-The instructions in this manual are not observed.
- The customer or a third party makes alterations to the unit without the consent of MEHITS.
- Losses or damage to people or things due to improper use of the equipment.

3.5.2 AR Function = All Recirculation

This is the baseline unit of the AIRME range.
The unit is only intended for air recirculation, collecting the air from the environment (yellow arrow) and introducing it back to the same after being handled through the main exchanger (direct expansion coil or water coil, blue arrow).
The extraction of the air from the environment and the introduction of new air from the outside must be ensured by other systems independent from the unit.
The unit thus configured is an ideal product for replacing obsolete units in existing installations that already have a dedicated air renewal system.

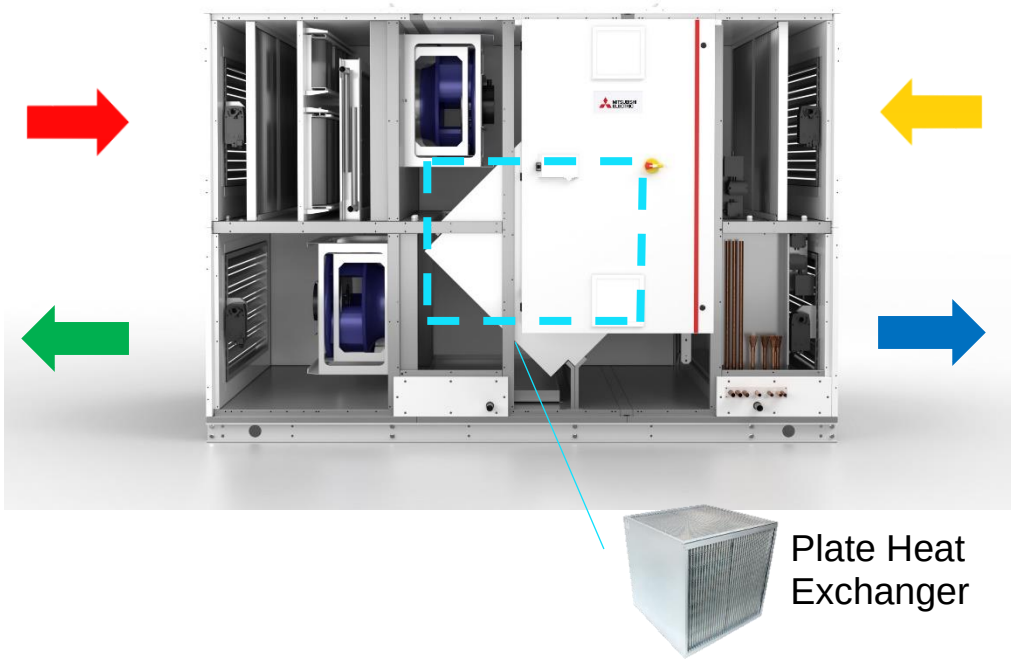
3.5.3 MF function – Mixing and Free cooling

When compared with the baseline configuration, this unit has 2 opposite motor-driven dampers managed by the machine controller, for air recirculation only, mixed, or free cooling operation.
With this function it is possible to mix the recirculation air from the environment (yellow arrow) with a certain amount of fresh air (red arrow), either a fixed value set using the controller, or a variable value modulated by the CO2 air quality probe (optional).
Free-cooling operation is managed by the controller, which controls the opening of the dampers, generating a mix of fresh air and energetically recirculated air, which is more convenient for the purpose of the treatment in relation to the outside temperature, the ambient temperature and the setpoint temperature. During this function one or more resources are disconnected, until total exclusion in case of total free cooling.
Delivery fans guarantee the design flow rate; ambient air expulsion must be ensured by other systems independent from the unit.
This function is preferred when the fresh air quantity to introduce in the environment is low, or when the pressure drops in the return ducts are not too high and the air containment of the building is low (old buildings).

3.5.4 Heat Recovery Plate Function (Plate heat recovery and return fan)

The HR-P function entails the use of a plate heat exchanger for energy recovery between the fresh and the return air. The recovery unit is included within the unit structure together with the plug fan EC supply and return fans, and is located upstream from the handling coil.
Filtration is provided on the external air upstream from the recovery unit to ensure protection against excessive fouling.
This function is useful in new buildings with high air change requirements (such as cinemas, theatres, auditoriums, exhibition centres and shopping centres).

Thermodynamic principle: the fresh air flow (red arrow) is sent through the plate heat recovery system, where it is heated (or cooled) by the return air flow (yellow arrow). The two air flows are kept completely separate thanks to the seals between the aluminium plates, and the heat is transferred thanks to the temperature difference between the two. The recovery efficiency increases with the increase in temperature difference between the two air flows. This is why this solution is particularly indicated for “extreme” climates.



Advantages:
• Complete separation of air flows (exhaust and fresh air), with no risk of contamination.
• High operation reliability and safety;
• Quick and easy cleaning and maintenance;
• Optimum performance in extreme climates;
• Extension of the unit limits of use;
• Suitable for operation with high fresh air flows;
• Aluminium heat exchanger to improve heat exchange;
• Low pressure drops thanks to the generous exchange surface;
• Thanks to the by-pass damper, the return air by-passes the heat recovery unit in free-cooling mode, resulting in less absorption of its fan.

During operation in **Free-cooling** mode, which is automatically activated in relation to the external temperature and humidity, environment and set-point, the unit's controller commands the progressive shutdown of all thermal resources present, up to complete exclusion in the case of total Free-cooling. In this way, the thermo-hygrometric conditions of the external air are directly exploited to condition the environment, allowing substantial energy and economic savings.
In this operating mode, the unit is equipped with plate recovery unit by-pass dampers, on the flow of return air, to prevent heat exchange within the exchanger with the external air when this is not useful:

3.5.5 Unit configuration

For each size, the AIRME range is available in 3 different versions for 3 different power levels:

- **Version C:** version suitable for the handling of neutral air. The main handling coil is not sized to achieve complete conditioning of the handled air, but only for recirculation and/or air exchange.
- **Version I:** version suitable for air conditioning without dehumidification. The coils are sized to achieve intermediate conditioning of the handled air, which is not able to compensate for the latent load with handling that includes dehumidification.
- **Version B**: suitable for conditioning and dehumidification of handled air. The coils are sized to achieve intermediate conditioning of the handled air, which is able to compensate for both sensitive and latent loads, with handling that includes dehumidification.

Combination of s-AIRME-G02/G07 units and Mr. Slim outdoor units

The units in the s-AIRME-G07 series are combined with the Mr. Slim direct expansion outdoor units to guarantee the required performance in both heating and cooling mode. The Mr. Slim outdoor units are combined with the three versions of the s-AIRME-G07 as shown in the tables below:

AR/MF FUNCTION

- Combinations for s-AIRME-G07 version **C**

Outdoor Units	s-AIRME-G07 3000	s-AIRME-G07 5000	s-AIRME-G07 7500	s-AIRME-G07 10000	s-AIRME-G07 12500	s-AIRME-G07 15000	s-AIRME-G07 20000
Size P100	1						
Size P140							
Size P200		1		2	1		
Size P250			1		1	2	3

- Combinations for s-AIRME-G07 version **I**

Outdoor Units	s-AIRME-G07 3000	s-AIRME-G07 5000	s-AIRME-G07 7500	s-AIRME-G07 10000	s-AIRME-G07 12500	s-AIRME-G07 15000	s-AIRME-G07 20000
Size P100							
Size P140	1						
Size P200			2		3		
Size P250		1		2		3	4

- Combinations for s-AIRME-G07 version **B**

Outdoor Units	s-AIRME-G07 3000	s-AIRME-G07 5000	s-AIRME-G07 7500	s-AIRME-G07 10000	s-AIRME-G07 12500	s-AIRME-G07 15000	s-AIRME-G07 20000
Size P100	2						
Size P140		1					
Size P200		1		3	4		
Size P250			2			4	5

HR-P FUNCTION

- Combinations for s-AIRME-G07 version **C**

Outdoor Units	s-AIRME-G07 3000	s-AIRME-G07 5000	s-AIRME-G07 7500	s-AIRME-G07 10000	s-AIRME-G07 12500	s-AIRME-G07 15000
Size P125		1				
Size P140						
Size P200	1	1	1	2	4	2
Size P250			1	1		2

- Combinations for s-AIRME-G07 version **I**

Outdoor Units	s-AIRME-G07 3000	s-AIRME-G07 5000	s-AIRME-G07 7500	s-AIRME-G07 10000	s-AIRME-G07 12500	s-AIRME-G07 15000
Size P125						
Size P140						
Size P200		2	3	4		6
Size P250	1				4	

- Combinations for s-AIRME-G07 version **B**

Outdoor Units	s-AIRME-G07 3000	s-AIRME-G07 5000	s-AIRME-G07 7500	s-AIRME-G07 10000	s-AIRME-G07 12500	s-AIRME-G07 15000
Size P125						
Size P140	2					
Size P200			1			
Size P250		2	2	4	5	6

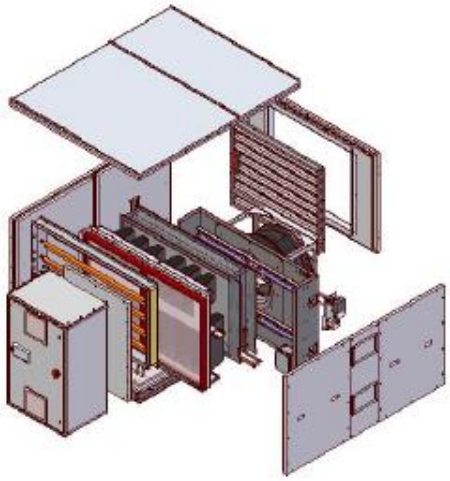
NOTICE:
The guarantee is rendered null and void when:

- The instructions in this manual have not been adhered to.
- The customer or a third party makes alterations to the unit without the consent of MEHITS.
- Losses or damage to people or things due to improper use of the equipment.

3.6 Description of the main components

3.6.1 Structure

Self-supporting one-piece structure without aluminium profiles, consisting of 60 mm thick sandwich panels with thermal break. They consist of an external pre-painted metal sheet that ensures total resistance to atmospheric agents (paint reference RAL 7035), a layer of thermal and acoustic insulation in polyurethane foam with an average density of 45 kg/m3 and Euroclass E reaction to fire according to EN 13501/1 (optional rock wool insulation with an average density of 90 kg/m3 and Euroclass A1), an internal galvanised steel sheet.

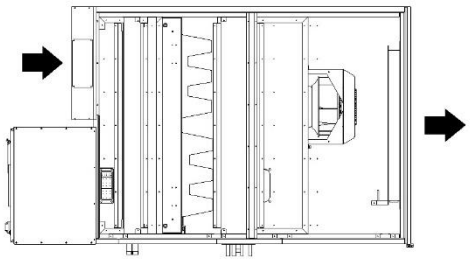


The structural work and the internal counter-frame to support the various components are made of galvanised steel, as is the load-bearing base of the unit.
Air and water tightness is guaranteed by a propylene gasket in continuous cord positioned on the panels.
The unit is accessed by dismantling the access panels, which are attached to the structure with removable screws.
Grasping the unit is made possible by the presence of special handles.
In order to ensure proper sealing against air and water leakage, the panel fixing screws must be tightened with a torque of 6 N/m.

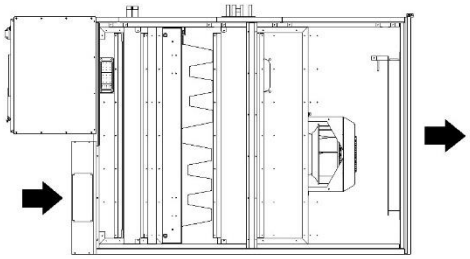
All versions, from full recirculation to the unit with plate heat recovery, are encompassed in a single one-piece structure, making the AIRME units in which handling and installation on site are greatly simplified.

The standard machine configuration includes inspections (removable panels) and refrigerant and water connections on the right. As optional, it is also possible to request the configuration with left connections and inspection points.
The right and left sides are seen looking away from the flow of supply air.

- Inspection doors and refrigerant and water connectors on right side:



- Inspection doors and refrigerant and water connectors on left side:



3.6.2 Electrical panel

The electrical panel is manufactured in accordance with EN60204-1 and is suitable for indoor and outdoor installation. It is positioned at the front of the unit, for easy access in case of need.
For each machine, there are the following main components:
• Control circuit transformer;
• General door locking switch;
• Single-pole distribution terminal boards;
• Power circuit with bar distribution system;
• Magnetothermic circuit breakers to protect loads;
• Spring-type control circuit terminals;
• PAC-IF 013 boards for managing external condensing units, 1 board per external unit;
• Outdoor electrical panel made of painted hot galvanised sheeting with seals;
• AIR3000+ microprocessor electronic controller
• LCD display operator panel

Input voltage: 400V~ ±10% - 50Hz.
The electrical cabinet is equipped with two air grills with their own filter and ventilation system, ensuring continuous ventilation that prevents overheating and reduces the risk of condensation formation on electrical and electronic devices.

3.6.3 Direct expansion coil s-AIRME-G07

- Geometry 25 X 21.65 mm;
- Copper pipe Ø 9.52 mm;
- Copper manifolds;
- Aluminium fins;
- Galvanised steel frame;
- R32 ecological refrigerant.

3.6.4 Hydronic coil w-AIRME

- Geometry pipe spacing 25 X 40 mm;
- Copper pipe Ø 16 mm;
- Iron manifolds;
- Aluminium fins;
- Galvanised steel frame.

3.6.5 Ventilation

Plug fan delivery fan with brushless EC motor. Composite material inverted blade impeller with three-dimensional blade profile optimised for extremely high performance and low noise.
Directly coupled brushless EC motor with IP54 protection degree, allowing continuous and precise air flow adjustment without the use of external inverters.
Two types of fans are available: standard fans and, optionally, an oversized version for required high useful static heads.
The installed fans comply with IEC 60335-2-40, sections 22.116 and 22.117, making them suitable for operation in the presence of A2L refrigerant gas.

3.6.6 Air filter

The AIRME series of machines are supplied with air filters with COARSE 55% efficiency according to ISO 16890 (G4 according to EN 779), 98 mm thick.
The filters are placed on steel guides, which can be accessed easily for routine maintenance and replacement. Optionally, it is possible to choose between pre-filters with different degrees of efficiency.
In the section downstream from the pre-filter, a high-efficiency filter can also be added with ePM01 50% (F7 according to EN 779), ePM01 70% (F8 according to EN 779) and ePM01 80% (F9 according to EN 779).

Packaging of standard units

In their standard packaging, units are supplied with air inlet and air outlet protections. They are also supplied with lifting and handling brackets.

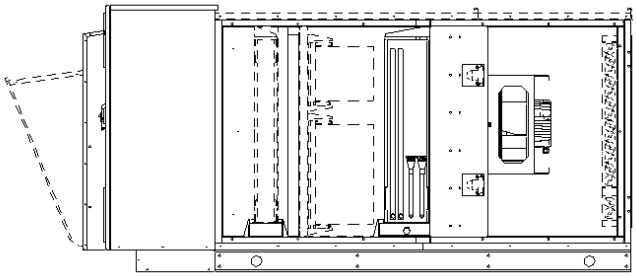
Two possible packaging solutions are available on request:

- **Shrink wrapping:** the standard packaging is further protected with shrink wrapping and reinforced corners.
- **Container packaging:** the machine is protected with shrink wrapping and reinforced corners, and is supplied with slides and bar for shipping in containers.

All the indications concerning the handling of the machine can be found in the dimensional drawing. The dimensional drawing is stored inside the electrical panel of the unit, together with all the accompanying documentation.

3.6.7 Information on the packaging

On the outside of shrink-wrapped units are dispatch labels and the drawing showing how to lift and handle the unit.
All the other information regarding the unit can be found and are only visible after removing the shrink wrapping.
Refer to the chapter "JOINING THE SECTIONS" for the electrical and mechanical connection of AIRME units in more than one section.

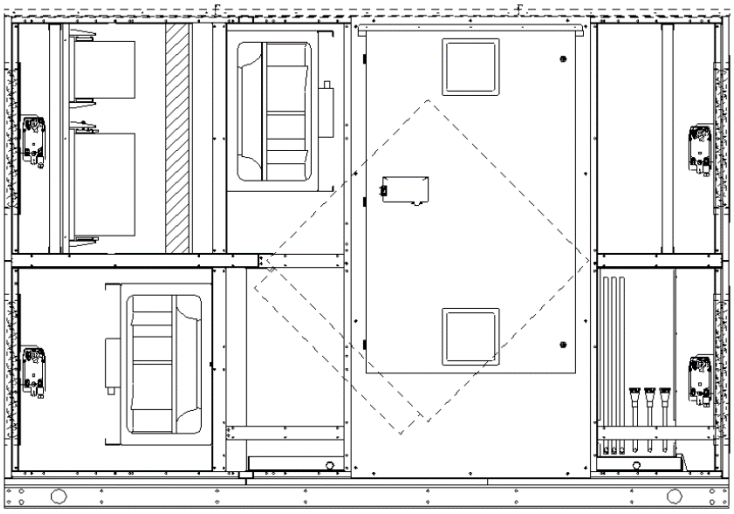


Dimensions and weight of standard units AR function

SIZE	LENGTH	WIDTH	HEIGHT	VERS. WEIGHT C	VERS. WEIGHT I	VERS. WEIGHT B
	[mm]	[mm]	[mm]	[kg]	[kg]	[kg]
AIRME 3000	2435	1025	965	310	315	320
AIRME 5000	2435	1425	965	410	420	430
AIRME 7500	2435	1525	1180	460	470	480
AIRME 10000	2535	1825	1235	490	500	510
AIRME 12500	2535	2025	1320	650	660	670
AIRME 15000	2535	2225	1430	730	760	790
AIRME 20000	2535	2525	1510	840	870	890

Dimensions and weight of standard units MF function

SIZE	LENGTH	WIDTH	HEIGHT	VERS. WEIGHT C	VERS. WEIGHT I	VERS. WEIGHT B
	[mm]	[mm]	[mm]	[kg]	[kg]	[kg]
AIRME 3000	2510	1025	965	340	345	350
AIRME 5000	2510	1425	965	440	450	460
AIRME 7500	2510	1525	1180	500	510	520
AIRME 10000	2610	1825	1235	530	540	560
AIRME 12500	2610	2025	1320	700	710	720
AIRME 15000	2610	2225	1430	790	820	840
AIRME 20000	2610	2525	1510	900	930	950



Dimensions and weight of standard units HR-P function

SIZE	LENGTH	WIDTH	HEIGHT	VERS. WEIGHT C	VERS. WEIGHT I	VERS. WEIGHT B
	[mm]	[mm]	[mm]	[kg]	[kg]	[kg]
AIRME 3000	2950	1385	1675	750	755	760
AIRME 5000	2950	1785	1675	950	960	970
AIRME 7500	3200	1885	2200	1250	1260	1270
AIRME 10000	3650	2185	2280	1600	1620	1630
AIRME 12500	3775	2385	2480	1750	1770	1800
AIRME 15000	3946	2585	2480	2100	2130	2150

4 TRANSPORT, STORAGE AND INSTALLATION

4.1 Transport and moving

4.1.1 General transport, handling and storage information

During transport and when not installed immediately upon receipt, the machine should be kept in its packaging in a closed and dry location, away from direct sunlight.

Temperature and humidity limits for transportation and storage

Temperature and humidity limits		
Minimum temperature	°C	-30
Maximum temperature	°C	50
Maximum humidity	RH%	90

Larger limits of temperature are possible and must be requested when ordering.

4.1.2 Transport

For road transport it is advisable to use a low loader truck with tarpaulin or in any case to use a tarpaulin to protect the units against bad weather. Use straps with a ratchet system to secure the unit for the purpose of transport.

INFORMATION:
To avoid damaging the unit, it is advisable to protect the contact points between the strap and the machine with resilient material of adequate thickness.
Avoid securing the straps too tightly on the load.
For more information, contact the Shipping Office of the manufacturer.

4.1.3 Discharge

During lifting and handling, always make sure that the location and the path being followed are such to ensure fully safe activities. In particular, before and during the activities, the customer must ensure that the right and adequate conditions are in place for safe transport:

- Sufficient visibility and lighting;
- The lifting equipment support and travel surfaces must have adequate bearing capacity taking into account the total loads, must not be slippery or excessively sloping;
- There must be no potholes or obstacles;
- There must be no water or moisture.

Particular attention should be paid to weather conditions especially during operations outdoors. Transport and lifting operations must not be carried out under conditions of snow, ice, rain or thunderstorms or when there are strong winds.

During all the transport stages, care should be taken not to cause imbalance of the load, which can be due to, for example, inadequate grip, oscillation, movement of parts of the unit that shift the centre of gravity, or excessive accelerations or decelerations.

The customer must prevent all unauthorised access to the area where transport, handling and lifting operations are carried out in and outside the area where the unit will be installed.

The manual handling of the loads can cause musculoskeletal disorders.
When handling the loads manually, make sure that the weight of the parts to be lifted is not too heavy for the operator to lift, in accordance with the domestic laws and regulations in force.
In any case, the weight of the objects to be lifted manually must not exceed 25 kg for each operation performed by a single operator and not more than 40 kg for each lifting operation performed by 2 operators. These values are based on the assumption of trained male operators familiar with the manual handling of loads and who are in good physical shape; carrying of the load against the body using the grips that guarantee a secure hold and stability of the load; a working environment without any obstructions; and optimal thermo-hygrometric conditions.
The customer should consider any aggravating circumstances and reduce the recommended maximum weight accordingly.

The unit or its parts should only be lifted and transported using suitable lifting equipment (forklift trucks or pallet trucks when indicated on the pack, or lifting cranes when lifting brackets are fitted) compliant with the domestic legislation and regulations in force. The lifting gear and any accessories used must have a sufficient load capacity for lifting the unit or individual parts to be moved.

The lifting gear and accessories must be in good condition and must be prepared, installed, maintained, monitored, checked, tested, operated and used in accordance with the manufacturer's instructions, the rules of good practice and the domestic laws and regulations that apply.

The lifting equipment and/or ropes and/or other lifting accessories to be fitted between the lifting device and the load (chains, slings, hooks, sling bars) are not provided by the manufacturer.

Operators lifting and/or transporting the unit or the individual packages (the customer, the freight forwarder and/or the installer) must only choose and use lifting accessories that comply with European regulations, and/or national regulations of the country of use.
The accessories must be in good condition and subjected to regular controls, checks, and maintenance, in accordance with the manufacturer's instructions, as well as European regulations and national laws of the country of use.

It is mandatory to use suitable lifting equipment that can withstand the total weight of the load to be lifted and is compliant with the domestic laws and regulations that apply.

It is mandatory to ensure the suitability of the lifting accessories which must be chosen on the basis of the loads to be lifted and the lifting procedures, avoiding excessive tension of the ropes, slings and chains and avoiding use of the accessories outside the limit load for which they were designed and built.

Make sure, in particular, that the ropes, slings and chains remain at an angle at which the load on each rope, sling or chain can be kept below its limit load.

The use of inappropriate lifting equipment may result in injury to the personnel involved in the operation and/or damage to the unit.

In case of lifting with helicopter, pay particular attention to the "sealing" of the openings on the machine. It is essential that there are no areas where air can enter the unit.
During the flight, the flow of air into the machine at high speed could cause the various panels to break with repercussions also in terms of safety.

Failure to observe the above and any harm caused to persons, animals or property relieves the manufacturer of all liability.

Before handling the machine, carefully read the following instructions.

WARNING:
All the unloading, handling and positioning operations must be carried out using appropriate means and by experience personnel, trained and authorised for such activities.

4.1.4 Receipt and inspection

Upon receipt, verify the integrity of the machine and check it against the order.

- Check the number of packages against the transport document. If incorrect, notify the carrier and the distributor.
- Perform a visual inspection of the packaging, when applicable.
- Check that the outside of the machine has not been damaged in any way.
- Check that the equipment supplied corresponds to the order and the delivery note.

In the event of damage to the product, please provide details in writing and with reserve and send the report to the shipper by registered mail within 48 hours of delivery (working days). Please also send a copy of the letter to the retailer and the supplier or distributor. Failure to comply with this procedure will render any claims to the shipper null and void.
If the machine is not installed upon receipt but is put into storage for a long period, set it aside in a protected environment following the instructions in the chapter 2 “STORAGE”.

OBLIGATION:
If any of the packages are damaged or missing, contact the Sales Office of the manufacturer and the freight forwarder, to agree the next plan of actions.

Technical data plate

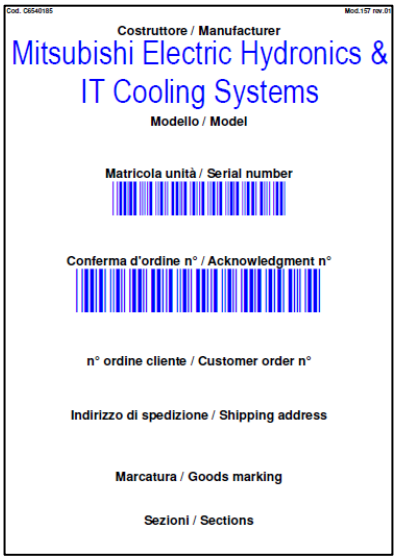
The technical data plate (see the example in the chapter 1.2 “Nomenclature”) provides the main information needed for electrical connection of the unit and for proper maintenance. The supply voltage must not exceed +10/-10 %. The power absorbed at full capacity FLI represents the maximum value that can be reached for the specified operating voltage. The power supply line must be sized according to the current absorbed by the unit at full capacity, or FLA. The customer must have an adequate power supply system. It is therefore important to check that the power supply voltage indicated on the rating plate of the unit is compatible with that of the customer's electrical system.
The data plate also indicates the year of manufacture, model and serial number, the maximum permissible pressures in the hydraulic circuit, the code of the wiring diagram and the operating weight of the unit.

INFORMATION:
The data on the name plates of s-AIRME-G02/G07 units only refer to such units. For information regarding Mr. Slim condensing units, refer to the relative documentation.

Identification of the sections

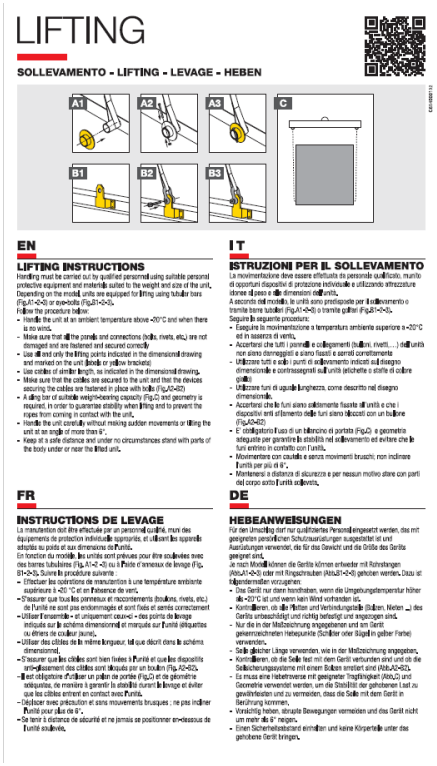
The unit may have been delivered in several sections.
The various sections making up the unit each have a serial number label (see example below) bearing the serial number of the main unit.

All parts with the same serial number must be assembled to form a single unit.



4.1.5 Handling

Before handling the unit, carefully read the instructions below and the indications of the yellow label on the product and in the lifting drawing, as well as the instruction manual of the lifting equipment used.


LIFTING

SOLLEVAMENTO - LIFTING - LEVAGE - HEBEN

A1 A2 A3 C

B1 B2 B3

EN

LIFTING INSTRUCTIONS

Handling must be carried out by qualified personnel using suitable personal protective equipment and materials suited to the weight and size of the unit. Depending on the model, units are equipped for lifting using tubular bars (Fig.A1-A3) or eye-bolts (Fig.B1-B3).

Follow the procedure below:

- Handle the unit at an ambient temperature above -20°C and when there is no wind.
- Make sure that all the panels and connections (bolts, rivets, etc.) are not damaged and are fastened and secured correctly.
- Use all and only the lifting points indicated in the dimensional drawing and marked on the unit (knobs or yellow brackets).
- Use cables of similar length, as indicated in the dimensional drawing.
- Make sure that the cables are secured to the unit and that the devices securing the cables are fastened in place with bolts (Fig.A2-B2).
- A sling bar of suitable weight-bearing capacity (Fig.C) and geometry is required, in order to guarantee stability when lifting and to prevent the ropes from coming in contact with the unit.
- Handle the unit carefully without making sudden movements or tilting the unit at an angle of more than 8°.
- Keep at a safe distance and under no circumstances stand with parts of the body under or near the lifted unit.

IT

ISTRUZIONI PER IL SOLLEVAMENTO

La movimentazione deve essere effettuata da personale qualificato, munito di opportuni dispositivi di protezione individuale e utilizzando attrezzature idonee al peso e alle dimensioni dell'unità.

A seconda del modello, le unità sono predisposte per il sollevamento a tramite barre tubolari (Fig.A1-A3) o tramite golfari (Fig.B1-B3).

Seguire la seguente procedura:

- Eseguire la movimentazione a temperatura ambiente superiore a -20°C ed in assenza di vento.
- Accertarsi che tutti i pannelli e collegamenti (bulloni, rivetti,...) dell'unità non siano danneggiati e siano fissati e serrati correttamente.
- Utilizzare tutti e soli i punti di sollevamento indicati sul disegno dimensionale e contrassegnati sull'unità (pulsanti o staffe di colore giallo).
- Utilizzare funi di uguale lunghezza, come descritto nel disegno dimensionale.
- Accertarsi che le funi siano saldamente fissate all'unità e che i dispositivi anti sfilamento delle funi siano bloccati con un bullone (Fig.A2-B2).
- E' obbligatorio l'uso di un bilancino di portata (Fig.C) e geometria adeguate per garantire la stabilità nel sollevamento ed evitare che le funi entrino in contatto con l'unità.
- Movimentare con cautela e senza movimenti bruschi; non inclinare l'unità per più di 8°.
- Mantenersi a distanza di sicurezza e per nessun motivo stare con parti del corpo sotto l'unità sollevata.

FR

INSTRUCTIONS DE LEVAGE

La manutention doit être effectuée par un personnel qualifié, muni des équipements de protection individuelle appropriés, et utilisant des appareils adaptés au poids et aux dimensions de l'unité.

En fonction du modèle, les unités sont prévues pour être soulevées avec des barres tubulaires (Fig.A1-A3) ou à l'aide d'anneaux de levage (Fig. B1-B3). Suivre la procédure suivante :

- Effectuer les opérations de manutention à une température ambiante supérieure à -20 °C et en l'absence de vent.
- S'assurer que tous les panneaux et raccordements (boulons, rivets, etc.) de l'unité ne sont pas endommagés et sont fixés et serrés correctement.
- Utiliser l'ensemble – et uniquement ceux-ci – des points de levage indiqués sur le schéma dimensionnel et marqués sur l'unité (étiquettes ou étriers de couleur jaune).
- Utiliser des câbles de la même longueur, tel que décrit dans le schéma dimensionnel.
- S'assurer que les câbles sont bien fixées à l'unité et que les dispositifs anti-glissement des câbles sont bloqués par un boulon (Fig. A2-B2).
- Il est obligatoire d'utiliser un palan de portée (Fig.C) et de géométrie adéquates, de manière à garantir la stabilité durant le levage et éviter que les câbles entrent en contact avec l'unité.
- Déplacer avec précaution et sans mouvements brusques ; ne pas incliner l'unité pour plus de 8°.
- Se tenir à distance de sécurité et ne jamais se positionner en-dessous de l'unité soulevée.

DE

HEBEANWEISUNGEN

Für den Umschlag darf nur qualifiziertes Personal eingesetzt werden, das mit geeigneten persönlichen Schutzausrüstungen ausgestattet ist und Ausrüstungen verwendet, die für das Gewicht und die Größe des Geräts geeignet sind.

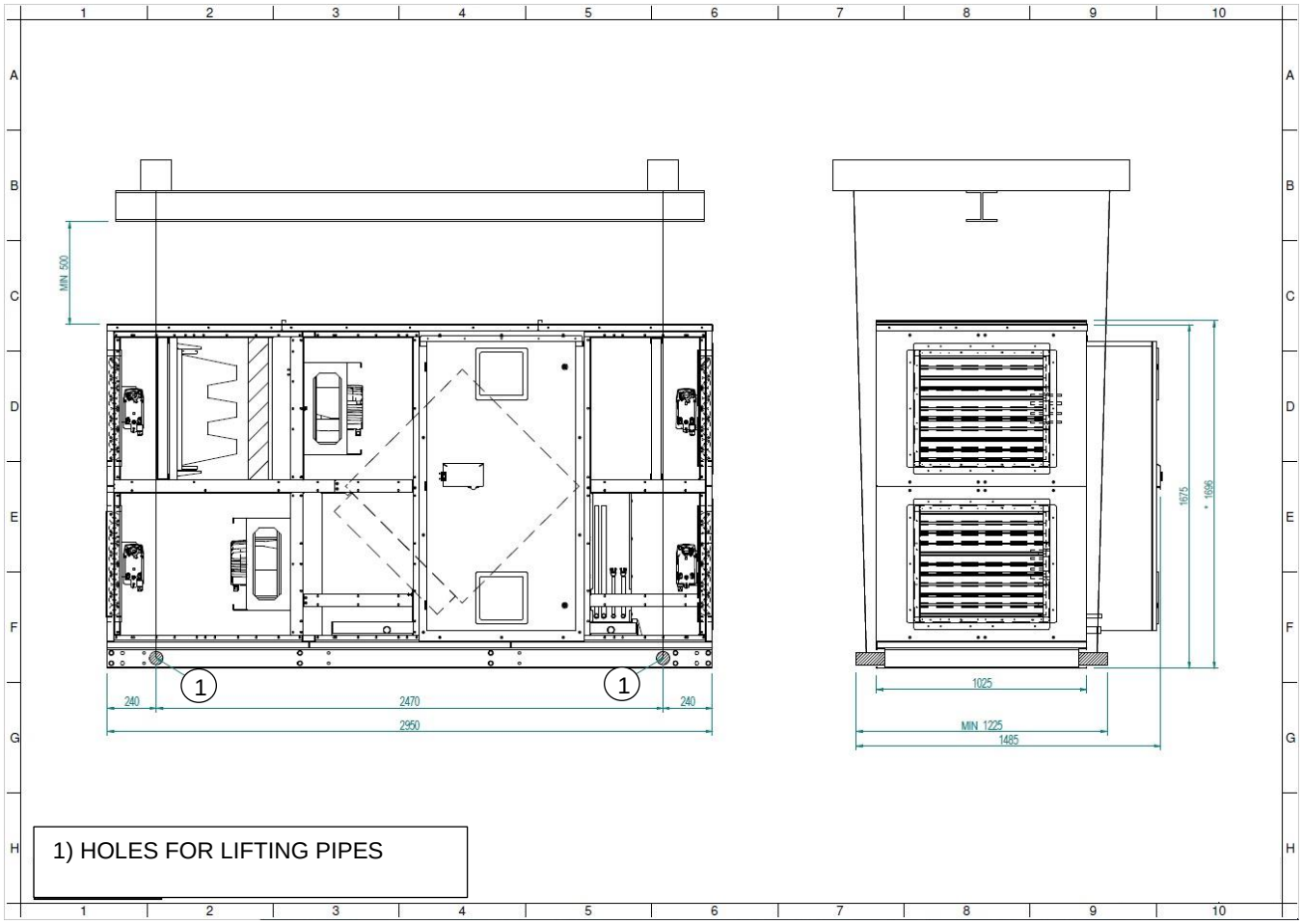
Je nach Modell können die Geräte können entweder mit Rohrstangen (Abb.A1-A3) oder mit Ringschrauben (Abb.B1-B3) geliefert werden. Dazu ist folgendermaßen vorzugehen:

- Das Gerät nur dann handhaben, wenn die Umgebungstemperatur höher als -20°C ist und wenn kein Wind vorhanden ist.
- Kontrollieren, ob alle Platten und Verbindungsteile (Bolzen, Nieten ...) des Geräts unbeschädigt und richtig befestigt und angezogen sind.
- Nur die in der Maßzeichnung angegebenen und am Gerät gekennzeichneten Hebepunkte (Schalter oder Bügel in gelber Farbe) verwenden.
- Seile gleicher Länge verwenden, wie in der Maßzeichnung angegeben.
- Kontrollieren, ob die Seile fest mit dem Gerät verbunden sind und ob die Sicherungssysteme mit einem Bolzen gesichert sind (Abb.A2-B2).
- Es muss eine Hebetraverse mit geeigneter Tragfähigkeit (Abb.C) und Geometrie verwendet werden, um die Stabilität der gehobenen Last zu gewährleisten und zu vermeiden, dass die Seile mit dem Gerät in Berührung kommen.
- Vorsichtig heben, abrupte Bewegungen vermeiden und das Gerät nicht um mehr als 8° neigen.
- Einen Sicherheitsabstand einhalten und keine Körperteile unter das gehobene Gerät bringen.

WARNING:
Lift one package at a time.

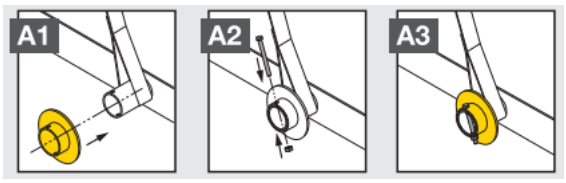
PROHIBITION:
Do not lift sections that are joined together.

The lifting drawing is part of the accompanying documentation; this documentation is on the product.
Handling and transport must be carried out by qualified personnel using suitable personal protective equipment and materials suited to the weight and size of the unit.
The units are designed for lifting by means of holes for passing pipes.
The base of the unit and its accessories is equipped with two 65 mm diameter holes on each side suitable for inserting pipes/rods to be used for lifting.
The pipes/rods are not included in the supply, they must be sized and supplied by the person responsible for the lifting operation, it is recommended that the suitability of the selected pipes/rods be verified by a structural engineer.
To find the necessary information for sizing the type of pipes/rods, e.g. dimensions and weight of the unit, refer to the dimensional drawing for the unit to be lifted.
Use all and only the points indicated in the dimensional drawing and marked on the unit (see circled details in the drawing below).
Sample images showing what discussed above. The unit layout may vary depending on size. Refer to the corresponding dimensional drawing.



Implement the following measures:

1. Handle the unit at an ambient temperature above -10°C and when there is no wind.
2. Make sure that no unit components are damaged and that they are correctly installed.
3. Use all, and only, the lifting points indicated in the dimensional drawing and marked on the unit.
4. Use cables of suitable load-bearing capacity and length, as indicated in the dimensional drawing.
5. Make sure that the ropes are securely attached to the unit using suitable devices.
6. It is obligatory to use a sling bar of suitable weight-bearing capacity to guarantee stability when lifting and to prevent the cables from coming in contact with the unit.



7. Make sure that the lifting ropes will not damage the machine during lifting.
   If it is not possible to keep the ropes away from the unit, place appropriate protection materials between the two.
8. Move the machine carefully and avoid abrupt movements.
9. Keep at a safe distance and do not, for any reason, stand with parts of the body under or near the lifted unit.
10. Handle the unit carefully without making sudden movements or tilting the unit at an angle of more than 6°.
11. Keep at a safe distance and do not, for any reason, stand with parts of the body under or near the lifted unit.

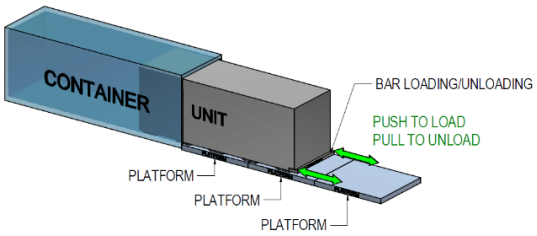
The surface on which the unit is placed must be level and sufficiently strong to take the weight of the machine when full of water and running, as indicated in the dimensional drawing.
To reduce vibrations to the supporting structures, assemble vibration dampers at each fastening point indicated in the dimensional drawing.
Install the vibration dampers under the base with the unit lifted no more than 200 mm off the ground and avoid standing with parts of the body under the unit.

In any case, always secure the unit on the support base. The vibration dampers may extend outside the span of the machine and, in which case, will require suitable support.
In the case of installation on a raised surface, make sure that the handle of the power disconnector is easy to access and at a height of between 0.6.6 m and 1.9 m above the floor (EN60204-1).

4.1.6 Loading and unloading from containers

The loading and unloading operations, also indicated on a dedicated label applied to the product, are:

1. Place the container on a flat non-sloping surface.
2. Align a platform at least as long as the unit to the plinth of the container.
3. When moving it in and out of the container, the unit must slide across the floor of the container and the platform (the unit is equipped with special slides to make this easier). Only push or pull on the appropriate bars connected to the unit. Make sure that during the movement the entire base of the unit is supported (do not lift at the grip points).



4.2 Installation

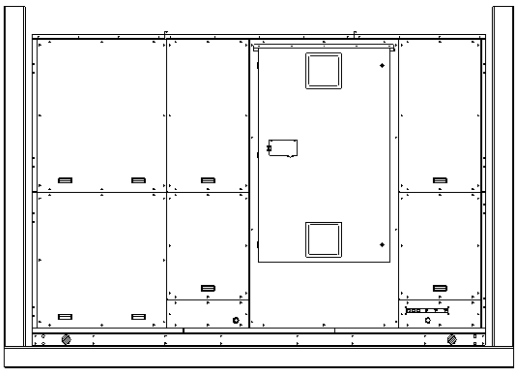
4.2.1 Installation of the standard machiine

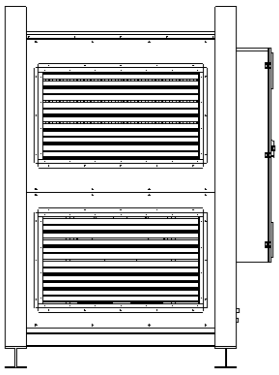
OBLIGATION:
Refer to the specific Manual.

WARNING:
All the installation stages must be included in the general system design.

Before installing the equipment, it is **mandatory** to carry out the following checks:

- There must be sufficient space in which to install the unit observing the minimum required clearances indicated in this manual.
- The area must be perfectly flat and guarantee stability over time.
- The units must be equipped with a roof for outdoor installations.
- The surface on which the equipment is to be installed must be strong enough to withstand its weight. A preliminary assessment of the overall situation is necessary.
- The openings of the delivery and recirculation ducts should not weaken the structure.
- There must not be any obstructions that could prevent the equipment from working properly.
- The air suction and delivery must not be obstructed in any way, even partially.
- The power of the electric system must be compatible with the electrical specifications of the equipment.
- A condensate drain must be put in place.
- The area must be easy to access for all those who have to interact with it during its life span.
- There must be sufficient space for maintenance.
- Check that it is possible to perform all maintenance and replacement operations (routine and extraordinary) easily and without risks to people, and in compliance with the laws in force concerning safety at work.
- Make sure that the unit is installed in accordance with the applicable domestic rules and regulations in force.
- Do not install on uneven surfaces.
- Do not install two units near or adjacent to each other, because excessive proximity can reduce the intake of air (see para. "Clearances for installation").
- The machine must be installed in a non-aggressive atmosphere.
- Before installing a unit, it is important to consider:
    - the direction and location of the air flows;
    - the external dimensions of the unit and the size of the air duct connections;
    - the arrangement of the inspection doors and any hydraulic connections;
    - the space required to open the inspection doors and to access the various components.
- In general, make sure that there are no obstacles (walls, trees or roof edges) that could interfere with duct connections or prevent mounting and access for maintenance.
- The place of installation of the unit must be set up to ensure uniform support for the under-frames of the unit, and keep the base of the unit parallel with the ground.
- Check the waterproofing of areas where rainwater is free to flow.
- Suspended installation is possible only when the structure the unit is suspended from has been verified as being able to support the total weight of the air handling unit during operation. Sizing of the support structure and how the unit is anchored to it are the installer’s responsibility.



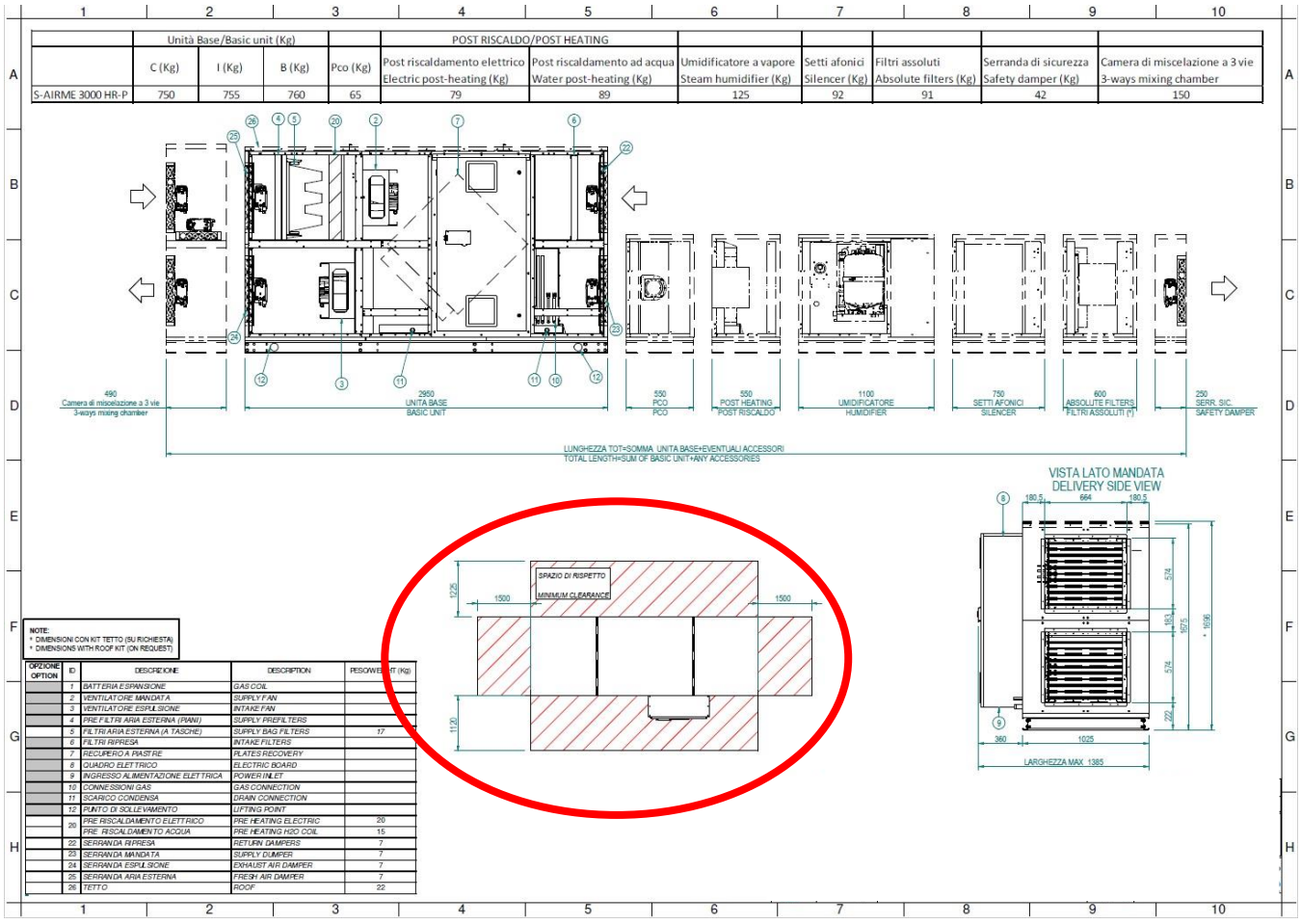


- The unit must be installed according to the requirements of standard EN 378-3 and the local regulations in force, in particular taking into account the category of occupation of the premises and the safety class defined by EN 378-1.

Refrigerant	R32
Safety class	A2L

OBLIGATION:
The unit must be put in a position where there is sufficient space for performing routine and extraordinary maintenance as indicated in the dimensional drawing.
This allows ease of access to the components of the machine for the purpose of normal inspection and maintenance operations.

Sample images of the above. The unit layout may vary depending on size, so refer to the corresponding dimensional drawing. Respect spaces are shown in the circled image.



NOTE: In the case of accessories and options, the clearances must be calculated considering the maximum overall dimensions with all the accessories/options provided.
When two units are set side by side on the battery side, add up the measurements to be respected on the battery side of the two units.

INFORMATION:
In the case of accessories and options (for example a humidifier module or a mixing module), the clearances must be calculated considering the maximum overall dimensions with all the accessories/options provided.
Check the dimensions of the accessories/options in the relevant chapter.

INFORMATION:
In the case of accessories and options, the clearances must be calculated considering the maximum overall dimensions with all the accessories/options provided.
When two units are set side by side on the battery side, add up the measurements to be respected on the battery side of the two units.

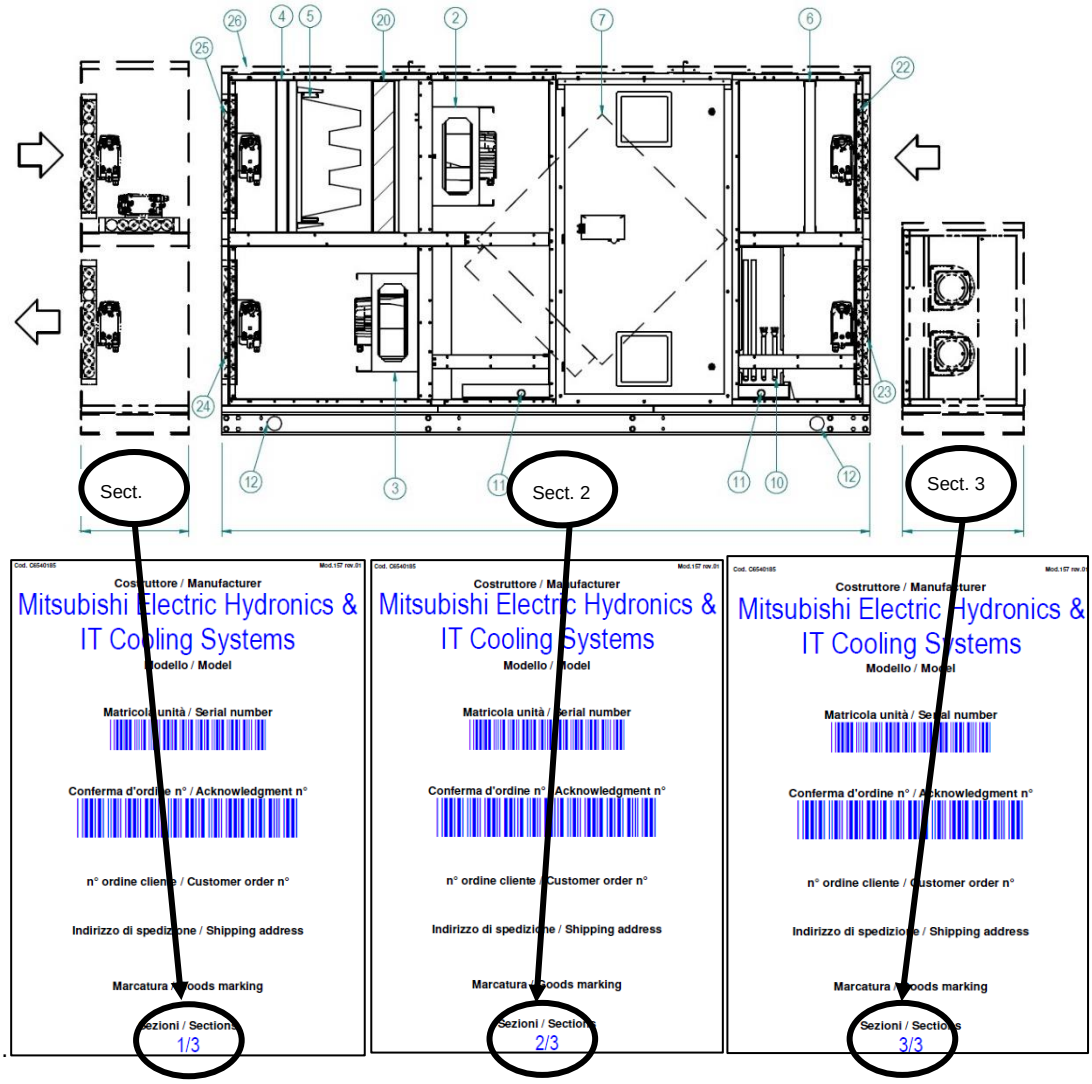
INFORMATION:
R32 gas is classified as slightly flammable.
In case of leakage, in order to ensure a refrigerant concentration below the safety limit, the installer/maintenance technician must provide adequate ventilation.

INFORMATION:
Air-cooled machines must be protected against wind, which can affect condensation control
prevent defrosting in the heat pumps. The finned coils must also be protected against dirt (dust, leaves, wood chips, etc...) and atmospheric conditions that can cause corrosion.

WARNING:
Maintenance technicians must only work on the unit's controls. They should not open any panels, other than the access panel to the control module.
The installer must limit him/herself to connecting the plant to the unit.
Access the unit using the relative personal protective equipment and only after having read and understood the documents and instructions, which must always be kept close at hand.

4.2.2 Machine positioning

Before placing the unit in its final position, remove the shims/slides from the base (if provided).
It is advisable to place an elastic rubber seal between the base of the machine and the floor, covering the entire support surface, to prevent the transmission of noise and vibrations. The thickness and the type of rubber must be identified accordingly in order to achieve the above result.
Units composed of multiple sections and the sections available as accessories (steam humidification section and section with three dampers) must be put together, only after lifting them, in accordance with the drawings and paying close attention to the positions of the inspection doors and connectors (these must all be on the same side). For this purpose, identify each section by checking its number on its serial number label and on the dimensional drawing of the unit. See the example below:



4.2.3 Joining the sections

The procedure for joining the sections of a unit after lifting is as follows:

1. Check that the order of the sections is exactly the same as shown in the dimensional drawing.
2. Check that the side with the connectors and inspection doors of the sections is as desired. Position the sections so that all the connections and inspection doors are on the same side.
3. The material for joining the sections is supplied in a box inside the **delivery fan** section or in the filter access plenums (for small machines).
4. Before joining the sections:
    - clean the contact surface between the sections and apply the supplied self-adhesive gasket (fig. A);
    - waterproof the area where the individual modules are coupled together using silicone sealant (fig.B);
    - For units equipped with a weather cover panel, before joining the modules together, apply silicone to the edges of the canopy at the joints, so as to increase the seal of the cover itself (Fig.C).

Fig.A

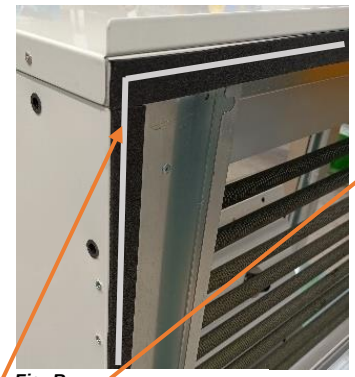


Fig. B

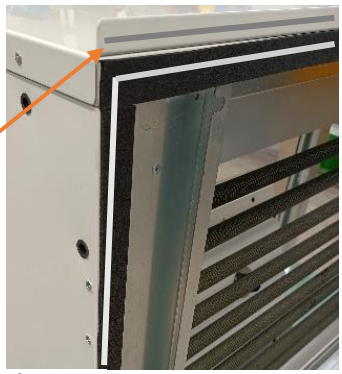
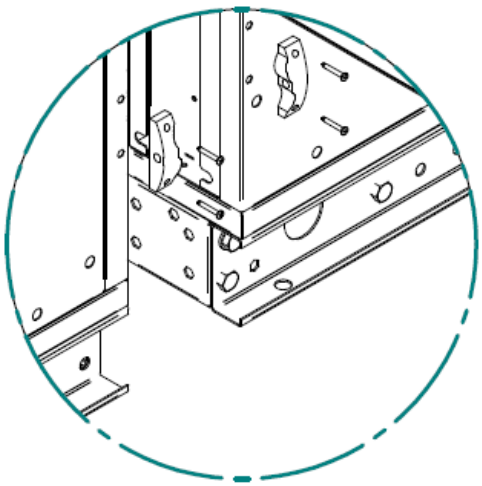
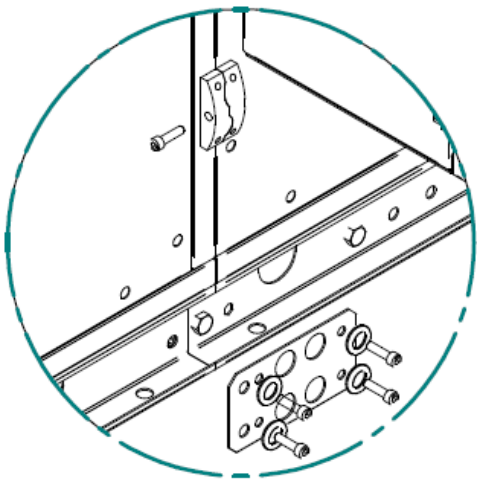


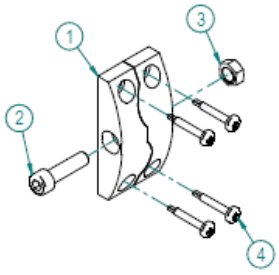
Fig. C

5. Put the sections together, verifying the perfect alignment and planarity of the parts.
6. Join the sections with the brackets provided, arranging them as shown on the attached drawing in the fan chamber and according to the required configuration of the unit.



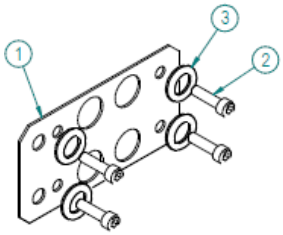


Locate the hexagonal inserts near the edge of the modules.
Insert and secure the two screws on the first and second half of the plate.



Pos.		Description
1		PLATE
2		SCREW M8x30
3		M8 NUT
4		SCREW M5X30

Insert and tighten the screw on the side of the plate to ensure correct coupling.
Fix the connecting plate on the base at the dedicated hexagonal inserts.



Pos.		Description
1		PLATE
2		SCREW M8 (M12) X15
3		WASHER M8 (M12)

7. After assembly, seal the spaces between the individual modules using the silicone provided (Fig. D).

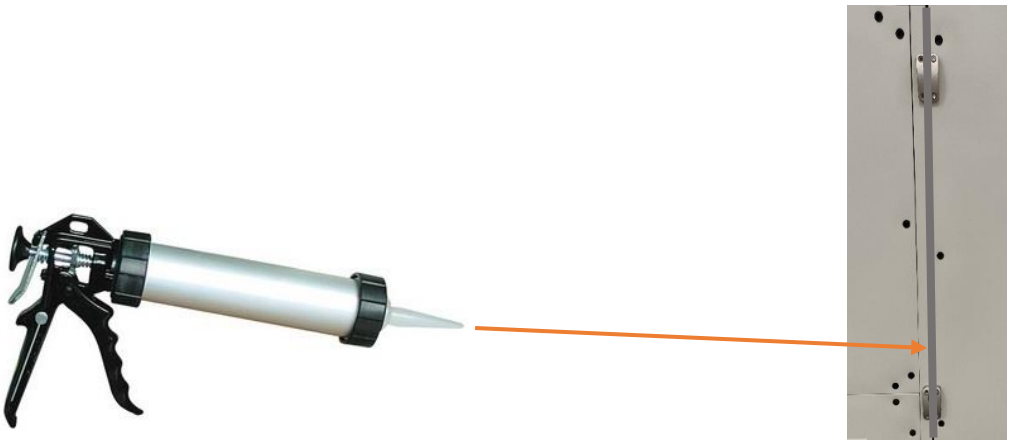


Fig.D

The electrical and mechanical connection of single-section s-AIRME units is done directly at the factory.

4.2.4 Section wiring

The optional accessories are designed so that the electrical connection to the main unit is easy and flexible according to the requirements of the individual installation and the configuration purchased.
The more complex optional accessories (heating elements, humidifier, PCO lamps) have a dedicated electrical panel installed on the same accessory. The necessary cables for power supply and control signal interfacing are already connected to the accessory's electrical panel. The power supply for each accessory and its signal interface will always come from the unit's general electrical panel.
For the simplest options (absolute filters, safety delivery damper), there will be no dedicated on-board electrical panel, but there will be electrical cables to be connected to the main unit's electrical panel.
The electrical cables must be connected using the holes in the bottom of the main electrical panel, which have been specially prepared for this purpose. The holes in the bottom of the electrical panel are equipped with rubber membrane grommets through which the electrical cables can be passed.
The connection of the electrical cables to the main electrical panel must be firm and stable.
Pay attention to the unwinding of the sleeves in order to avoid twisting of the sleeves and the cables they contain. If the sheaths become damaged during positioning or no longer guarantee that the cables can be pulled out due to crushing, they must be replaced. If the sleeves are damaged, it will be necessary to carefully check that the cables they contain are intact, otherwise replace them.

The fastening of the sleeves containing electrical cables must be as close as possible to the machine base, maintaining access for inspection. The route must be as straight as possible, avoiding sharp bends, obstructions to the passage or dangerous situations for any operator who may be working on the machine itself.
Connect the accessory's electrical cables to the unit's main electrical panel, referring to the unit's wiring diagram. Each accessory will have its wires numbered, and it is sufficient to connect each numbered wire to its numbered terminal in the main electrical panel.

Figure: Unit main electrical panel (left, example MF-type unit) and accessory electrical panel (right)

4.2.5 Remote main electrical panel connection and wiring

For the largest units, the main electrical panels will be shipped separately, and will therefore have to be connected to the machine directly at the installation site. The sizes with this characteristic are the following: 15000 AR/MF, 20000 AR/MF, 12500 HR-P, 15000 HR-P.
The electrical panel must be placed next to the machine frontally on the side of the external air return/entry in the case of AR/MF type units, and laterally on the inspection side in the case of HR-P type units, corresponding to the full height of the non-removable panel.
The electrical panel must then be fixed to the machine by means of M8 screws, using the holes provided on the base inside the electrical panel itself in the case of AR/MF type units, or by means of the external holes along the side fixing brackets in HR-P type units.

Once the electrical panel has been correctly positioned on the unit, the electrical connections must be made. The wiring is designed to be very intuitive by means of quick electrical connectors.
Connectors with a degree of protection suitable for outdoor installation are labelled to identify them uniquely and coded via pins to make accidental connection between connectors with different functions impossible.
The electrical connectors coming out of the panel will be of the female type for protection against accidental contact. Lay the sleeves carefully so that they fit naturally against the machine’s connector panel without excessive strain. Once all the loose connectors on the electrical panel have been coupled with their fixed counterpart on the machine panel, the fixing levers must be firmly closed so that the connection is secure and permanent.

Figure: open (left) and closed (right) female-male connector

Check the correct laying of the sleeves, the closure of the sleeve clamp fittings and the connectors, ensuring that the connections are effective and well tightened. Fasten the sleeves together so that the assembly is solid.

4.2.6 Connection of the cooling circuit between s-AIRME-G07 and Mr. Slim unit

To ensure correct operation and avoid faults in the connected units, it is necessary to guarantee the correct cooling circuit connection between the circuits of the direct expansion coil (ED) of the s-AIRME-G07 unit and the corresponding Mr. Slim condensing unit. Similarly, it is also necessary to guarantee the correct connection of the signals between the PAC-IF interface boards and the corresponding Mr. Slim units.

The DE coil of the s-AIRME-G07 units is composed of a number of circuits equal to the number of Mr. Slim condensing units to be combined with the air handling unit; there is a circuit for each Mr. Slim.

The electrical panels of the s-AIRME-G07 units include a number of PAC-IF interface cards equal to the number of Mr. Slim condensing units to be combined with the air handling unit; there is a PAC-IF for each Mr. Slim.

The circuit of the DE coil, the Mr. Slim condensing unit and the PAC-IF interface card must be connected to form a closed loop. See the indicative diagram in the section "IDENTIFICATION OF THE CIRCUITS".

Maximum length of piping (A) = 30 m

INFORMATION:
The distance between the s-AIRME-G07 units and the Mr. Slim condensing units should be such that the length of the connections of the cooling circuits does not exceed 30 m.
Connections of the cooling circuits exceeding 30 m can reduce the performance of the unit and cause irreparable damage to, or malfunctioning of the connected machines.
The connections of the cooling circuits between the s-AIRME-G07 and Mr Slim must be protected against damage.

WARNING:
The cooling circuits must be connected by qualified personnel.
Connection of the cooling circuits, selection of the components, selection of the materials to be used and filling with refrigerant must be carried out with reference to the installation manual provided with the Mr. Slim condensing units combined with the s-AIRME-G07 unit.
The cooling circuits must also be connected in compliance with the "code of good practice" and in accordance with the relevant regulations in force in the various countries, taking into account the operating conditions and intended uses of the plant.
Errors in the design and/or connection of the cooling circuits can cause irreparable damage to, or malfunctioning of the machine.
Incorrect connections between the cooling circuits of the direct expansion coil of the s-AIRME-G07 unit and the Mr. Slim condensing unit can cause irreparable damage to, or malfunctioning of the connected machines
For units with R32 refrigerant charge, the cooling connections must be made entirely outdoor. Under no circumstances, should they pass through enclosed spaces or areas occupied by people.
Cooling circuit connections must only be completed by brazing.

The direct expansion coil in the s-AIRME-G07 units is pressurised with nitrogen or dry air in order to protect the exchanger against the intrusion of humidity and permit the identification of any leaks due to handling or storage, at the time of use. Before connecting this coil with the Mr. Slim condensing unit, make sure that it is still pressurized. Otherwise call technical support. Before connecting this coil to the condensing unit, open the Schrader valves to discharge any nitrogen or dry air inside the coil and cut the copper plugs of the manifolds using a special pipe cutter.

INFORMATION:
Use appropriate PPE when doing this.

The panel of the s-AIRME-G07 unit for the manifold outlet of the direct expansion coil has a protective plate.
Attention: plastic collars are applied to prevent damage to the copper pipes entering and leaving the coil. Before brazing, remove the collars from the panel (both on the inside and on the outside).
After brazing, wait for the pipes to cool down and then put the collars back on again.

Identification of the circuits

Before connecting the cooling circuits, it is necessary to identify with precision the circuits of the direct expansion (DE) coil of the s-AIRME-G07 unit that are to be connected to the correct Mr. Slim condensing unit.
The manifolds of the DE coil each have a label indicating the number of the circuit to which they belong and the type of line - gas or liquid - to which they must be connected. An example is given below:

When the s-AIRME-G07 units are combined with Mr. Slim condensing units of different capacities, the labels on the manifolds of the DE coil also indicate the size of the Mr. Slim to which they must be connected.

Pipe diameters of manifolds for AR/MF function

MODEO s-AIRME-G07 AR/MF		Number of connections x External diameter of connection [mm]						
		3000	5000	7500	10000	12500	15000	20000
C	Gas (G)	1 x 22	1 x 22	1 x 22	2 x 22	2 x 22	2 x 22	3 x 22
	Liquid (L)	1 x 18	1 x 18	1 x 18	2 x 18	2 x 18	2 x 18	3 x 18
B	Gas (G)	2 x 22	2 x 22	2 x 22	3 x 22	4 x 22	4 x 22	5 x 22
	Liquid (L)	2 x 18	2 x 18	2 x 18	3 x 18	4 x 18	4 x 18	5 x 18
I	Gas (G)	1 x 22	1 x 22	2 x 22	2 x 22	3 x 22	3 x 22	4 x 22
	Liquid (L)	1 x 18	1 x 18	2 x 18	2 x 18	3 x 18	3 x 18	4 x 18

Pipe diameters of manifolds for HR-P function

MODEL s-AIRME- G07 HR-P		Number of connections x External diameter of connection [mm]					
		3000	5000	7500	10000	12500	15000
C	Gas (G)	1 x 22	2 X 22	2 X 22	3 x 22	4 x 22	4 x 22
	Liquid (L)	1 x 18	2 X 18	2 X 18	3 x 18	4 x 18	4 x 18
B	Gas (G)	2 X 22	2 X 22	3 x 22	4 x 22	5 x 22	6 x 22
	Liquid (L)	2 X 18	2 X 18	3 x 18	4 x 18	5 x 18	6 x 18
I	Gas (G)	1 x 22	2 X 22	3 x 22	4 x 22	4 x 22	6 x 22
	Liquid (L)	1 x 18	2 X 18	3 x 18	4 x 18	4 x 18	6 x 18

Piping size table

Diameters of the connecting pipes between the condensing units and the AIRME coil manifolds:

		ZRP-ZM 100-140	ZRP-P-ZM-M 200	ZRP-P-ZM-M 250
Gas line	Pipe diameter [mm]	Ø15,88	Ø25,4	Ø25,4
Liquid line	Pipe diameter [mm]	Ø9,52	Ø9,52	Ø12,7

Nominal size (inches)	External diameter (mm)
3/8''	9.52
1/2''	12.70
5/8''	15.88
3/4"	19.05
1"	25.40

Types of copper to be used for the cooling line

SOFT COPPER: It's soft and malleable, and can be shaped or bent to make bends, siphons, etc. Use a pipe bending tool for the bending activities. Avoid repeated bending or shaping, as the material will gradually harden at the point of the bend and may break.

HARD COPPER: It's rather stiff, and not suitable for being bent. Only to be used for straight sections. To make bends, siphons, etc. use forged fittings.

General information for the completion of the cooling line

The cooling line must have a rational and practical path, in order to:

- limit pressure drops
- reduce the refrigerant content
- facilitate the return of lubricant oil to the compressor (Mr.Slim condensing unit)
- facilitate the flow of liquid refrigerant to the expansion valve
- prevent the return of liquid refrigerant with the compressor stopped
- vertical sections must be reduced to the minimum.
- always make large bends, with a minimum radius at least equal to the diameter of the pipe.
- always use a roller tube cutter to cut the pipes. Do not use a saw, as it causes internal burrs and shavings.
- fix the pipes both horizontally and vertically with copper or plastic collars every 2 m.
- do not use galvanized iron collars, since corrosion may occur at the point of contact with the copper pipe.
- for insulated pipes, it is advisable to use collars with insulating shells.
- keep a distance of at least 20 mm between piping.
- do not place electric cables nearby, as they may deteriorate.
- make “expansion joints” on the line, to balance the natural elongation / shrinkage of the pipes.

OBLIGATION:
The oxide that forms inside the pipe during the brazing process is dissolved by the HFC fluids and causes obstruction of the refrigerant filter. During the brazing process it is advisable to introduce nitrogen into the piping. If this is not possible, after completing the brazing operation wash the piping using solvents.

4.3 Hydraulic connections

OBLIGATION:
The execution of the hydraulic connection must be carried out by qualified personnel.
All the works, the choice of the components and the materials used must comply with the "Good Practices", according to the regulations in force in the different countries, taking into account the intended operating conditions of the system.

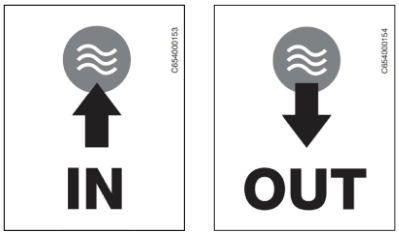
4.3.1 Hydraulic connection to water coils

The w-AIRME units have a hydronic coil as the main exchanger and are supplied with a suitable hydraulic kit consisting of:

- a three-way calibration valve with servo drive;
- pipes to connect the valve to the inlets and outlets of the exchanger.

This kit is supplied as an additional shipping package or placed inside the machine in one of the compartments equipped with a removable inspection panel.

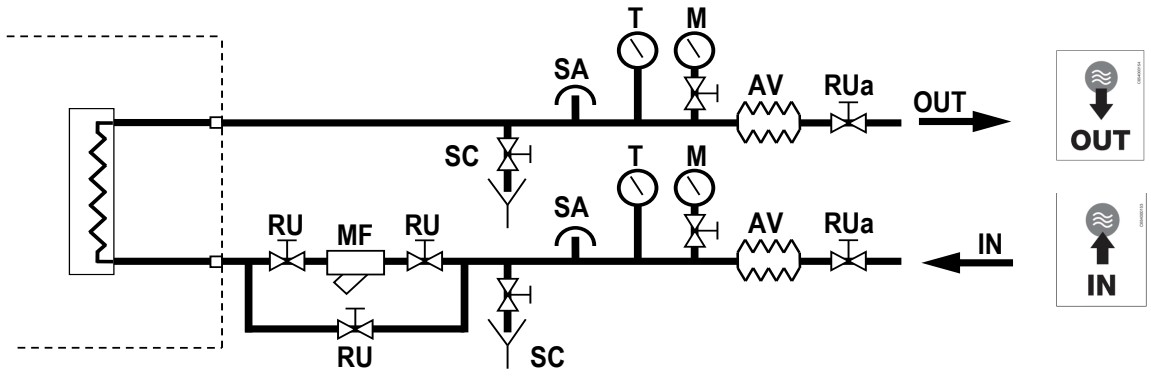
The inlet and outlet are marked with these labels affixed directly on the machine:



The hydraulic circuit must not obstruct the opening of the inspection doors of the AIRME unit, and must not obstruct removal of the heat exchanger.
A cover must be fitted for the servo drive when the unit is installed outdoors.
The servo drive must be installed in an area where the temperature is above – 5°C.

INFORMATION:
Install an expansion vessel with a safety valve in the hydraulic circuit. The hydraulic circuit must be sized according to the applicable laws in force.

Below are recommendations on design of the hydraulic connection to the coils:



During the design phase, envisage the installation of the following components on the inlet water line:

- **AV - Anti-vibration**: to isolate the vibrations that can be transmitted from the plant.
- **M - Pressure gauge** (with stopcock): indicates the water pressure in the inlet line.
- **T - Thermometer**: indicates the water temperature in the inlet line.
- **SA - Air vent**: to eliminate air in the inlet line.
- **SC - Drain valve**: to drain water out of the plant. To be used also for connecting an external pump for chemical washing.
- **MF - Mains filter:** (with a plant of RU valves for cleaning the filter): for trapping impurities in the plant.

Assemble the following components on the water outlet line:

- **RUa - Shut-off valves**: for shutting off the supply of water to the machine during maintenance.
- **AV - Anti-vibration**: to isolate the vibrations that can be transmitted from the plant.
- **M - Pressure gauge** (with stopcock): indicates the water pressure in the inlet line.
- **T - Thermometer**: indicates the water temperature in the outlet line.
- **SA - Air vent**: to eliminate air in the outlet line.
- **SC - Drain valve**: to drain water out of the plant. To be used also for connecting an external pump for chemical washing.

WARNING:
Maximum operating pressure 10 BAR, including the hydrostatic head – PN10.

The dimensions of the water inlet and outlet connections are shown in the two tables below:

Ø IN / OUT AR/MF	3000	5000	7500	10000	12500	15000	20000
Version C	1''	1 ¼''	1 ¼''	1 ½''	2''	2''	2 ½''
Version I	1''	1 ¼''	1 ½''	2''	2''	2''	2 ½''
B Version	1 ¼''	1 ½''	2''	2''	2 ½''	2 ½''	3''

Ø IN / OUT HR-P	3000	5000	7500	10000	12500	15000
Version C	¾''	1''	1 ¼''	1 ¼''	2''	2''
Version I	¾''	1 ¼''	1 ¼''	1 ½''	2''	2 ½''
B Version	1''	1 ¼''	1 ½''	2''	2''	2 ½''

After connecting the hydraulic kit to the coil manifolds, the valve servocontrol cable must be connected to the terminal board in the w-AIRME main electrical panel, as shown in the wiring diagram.

4.3.2 Installation technical notes

The connection pipes must be suitably supported so that they do not weigh down on the machine.
Avoid rigid connections between the machine and the pipes, and install vibration dampers.
For temperatures values, minimum and maximum water flow rates and the volumes of water in the heat exchanger water circuit refer to the technical bulletin.
Any heating elements installed to prevent the pipes from freezing must be kept away from devices, sensors and materials that the heating elements could damage or cause to malfunction (for example, temperature sensors, plastic components and power cables).

4.3.3 Cleaning and filling the hydraulic circuit

OBLIGATION:
Wash the pipes of the hydraulic circuits to remove any processing residues and other dirt inside. This operation must be performed to avoid damaging the parts of the machine.

After washing, check the hydraulic circuits for any leaks. To do this, load the circuits at a pressure higher than atmospheric pressure and check that there are no pressure leaks over time.

INFORMATION:
The thermal insulation of the pipes outside the machine is the responsibility of the installer and must only be completed after ascertaining that there are no leaks.

If other products are expected, in addition to mixtures of water and ethylene or propylene glycol, contact the manufacturer's technical office.

Both the finned water coil and the water-cooled condenser have air vent valves:

- Finned water coil: the vent valves are located at the front of the unit and are connected to the finned water coil manifolds.
- Water-cooled condenser: the vent valve is located on the water outlet pipe of the condenser.

4.3.4 Water quality

OBLIGATION:
The values shown in the table must be guaranteed during the entire life cycle of the machine.

	Description	Symbol	Range values
1	Hydrogen ions	pH	7.5 ÷ 9
2	Presence of calcium (Ca) and magnesium (Mg)	Hardness	4 ÷ 8.5 °D
3	Chloride ions	Cl^-	< 150 ppm
4	Iron ions	Fe^{3+}	< 0.5 ppm
5	Manganese ions	Mn^{2+}	< 0.05 ppm
6	Carbon dioxide	CO_2	< 10 ppm
7	Hydrogen sulphide	H_2S	< 50 ppb
8	Oxygen	O_2	< 0.1 ppm
9	Chlorine	Cl_2	< 0.5 ppm
10	Ammonia NH_3	NH_3	< 0.5 ppm
11	Ratio between carbonates and sulphates	HCO_3-/SO_4^{2-}	> 1
12	Sulphate ions	SO_4^{--}	< 100 ppm
13	Phosphate ions	PO_4^{3-}	< 2.0 ppm

where: 1/1.78°D = 1°Fr with 1°Fr = 10 gr $CaCO_3$ / m^3 - ppm = parts per million - ppb = parts per billion

Explanatory notes:

ref. 1: A greater concentration of hydrogen ions (pH) than 9 implies a high risk of deposits, whereas a lower pH than 7 implies a high risk of corrosion.
ref. 2: The hardness measures the amount of Ca and Mg carbonate dissolved in the water with a temperature lower than 100°C (temporary hardness). A high hardness implies a high risk of deposits;
ref. 3: concentrations of chloride ions higher than those indicated causes corrosion;
ref. 4 - 5 - 8: the presence of iron and manganese ions and oxygen leads to corrosion;
ref. 6 - 7: carbon dioxide and hydrogen sulphide are impurities that promote corrosion;
ref. 9: In water from the waterworks it is a value of between 0.2 and 0.3 ppm. High values cause corrosion;
ref. 10: The presence of ammonia reinforces the oxidising power of oxygen
ref. 11: Below the value shown in the table, there is a risk of corrosion due to the trigger of galvanic currents between copper and other less noble metals.
ref. 12: The presence of sulphates ions triggers corrosion phenomenon.

ref. 13: The presence of phosphates ions triggers corrosion phenomenon.

Checks should be carried out on a regular basis, taking samples at various points of the hydraulic system.
During the first year of operation, it is recommended to perform checks every 4 months. Checks can then be performed once every six months as from the second year of operation.

OBLIGATION:
Parameter values outside the indicated ranges may lead to the formation of deposits and scale, and/or encourage the occurrence of corrosive phenomena inside the system. In case of service fluids other than water (e.g. ethylene or propylene glycol), it is advisable to always use special inhibitors that offer thermal stability within the operating temperature ranges and protection against corrosion phenomena.
It is absolutely essential that, in the presence of dirty and/or aggressive water, an intermediate heat exchanger is placed upstream of the heat exchangers.

4.3.5 Anti-freeze solutions

In plants that are not adequately protected by heating cables, protect the hydraulic circuit with an anti-freeze mixture when the ambient air temperature can drop below 5°C.

		suggested % by weight								
		%	0	12	20	30	35	40	45	50
ETHYLENE GLYCOL	**Minimum ambient air temperature**	°C	5	0	-5	-10	-15	-20	-25	-30
PROPYLENE GLYCOL	**Minimum ambient air temperature**	°C	5	2	-3	-9	-13	-17	-23	-29

The values shown are indicative and may vary depending on the manufacturer. Refer to your glycol supplier for more details.
The values indicated consider a precautionary difference of 5°C between the minimum outside air temperature and the freezing temperature of the solution.

Do not use fluids other than water or ethylene glycol/propylene glycol water solutions in the hydraulic circuit.
If other products are provided, in addition to mixtures of water and ethylene or propylene glycol, contact the Manufacturer to check the compatibility with the machine components.

4.4 Hydraulic connection of the condensate drain

Hydraulic connection of the condensate drain

To connect the condensate drain, follow the instructions below both for the AIRME unit and for the humidification section accessory.

Standard supply

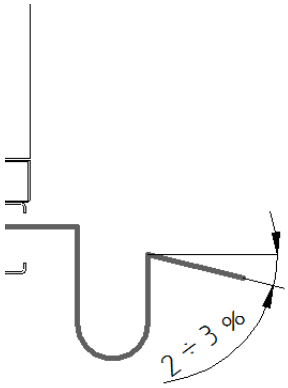
The condensate drain pipe is connected to the collection tank.
The piping is at the bottom of the machine.
The condensate drain has a 1" male threaded sleeve for connection to the trap.
The condensate drains by gravity.

To be done by the installer

Set up a trap in the vicinity of the machine, as shown in the figure.
The trap prevents the intake of air from the drain pipe by eliminating the vacuum of the fan.
Connect the condensate drain to a rainwater drain pipe.
Ensure a 2 - 3% gradient of the pipe down towards the drain.
Keep the same internal diameter for drain pipes of up to 4 - 5 metres. For greater lengths, increase the section of the drain.
Insulate the pipes and the trap to prevent the dripping of condensation and the danger that the condensation will freeze.
Fill the trap with water.

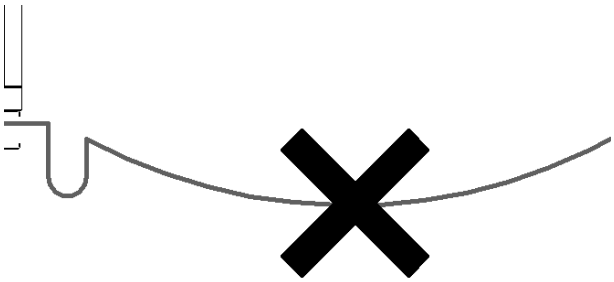
ATTENTION:
Do not use washing or sewage water drains as this may cause unpleasant odours if the water in the syphon evaporates.

When done, check the condensate drains correctly by pouring some water into the drip tray.



The condensate drain can be identified on the plate affixed directly on the machine.

WARNING:
No part of the drain line should be uphill.



The connection pipes must be suitably supported so that they do not weigh down on the machine.

4.5 Electrical connections

The electrical connections of the machine must be defined during the system design.

DANGER:
The electrical connections must only be designed and completed by personnel with precise technical competence or particular skills in the field of activity. Before proceeding, personnel must disconnect all power supply sources, making sure that no one may inadvertently re-connect them.

- The specifications of the mains power supply must comply with EN 60204-1 and the local regulations in force and be sufficient for the absorption requirements of the unit indicated in the wiring diagram and on the data plate. Mains voltage must correspond to the rated value +/- 10% with a maximum phase difference of 2%.
- The unit must be connection to a three-phase TN(S) type electric power supply. Should the installation of a circuit breaker be envisaged in the electrical system, it must be type A or B.
- The machine power cable of Class I appliances has a green/yellow core for grounding.
- Be sure to leave a slightly longer ground wire so that the current-carrying conductors become taut before the ground wire. If the cable slips out, anchor it.
- In the case of multi-phase appliances, the colour of the neutral conductor of the power cable is blue.
- Refer to local bylaws. Power electrically the machine only if the refrigerant / water circuit is charged.

OBLIGATION:
The electricity power supply line must be fitted with a general switch for the disconnection of the machine from the energy source.

In accordance with the IEC 60204-1 standard, the handle of the circuit breaker must be easy to access and at a height between 0.6 and 1.9 metres from the floor.

4.5.1 Power supply for packaged machine

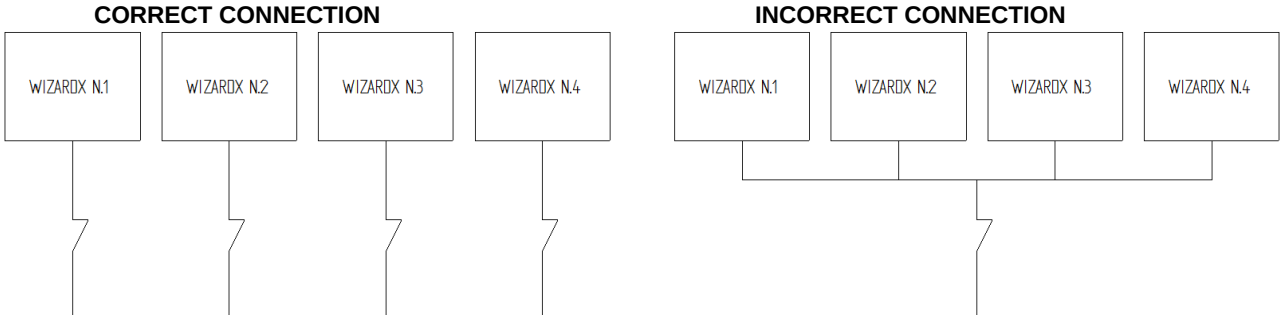
Install an overload cut-out device, not included in the supply, on the supply line of the electrical panel in compliance with the regulations in force.
Supply the unit switchboard with a cable of a diameter suited to the absorption capacity of the machine indicated on the data plate. The control circuit is shunted off the power circuit from inside the electrical panel.
Do not touch hot and/or sharp surfaces. Do not lay electric cables unless their positions are specifically identified.
The supply must never be disconnected, except during maintenance operations, in order to ensure the operation of the refrigerant leakage detection sensor and any anti-freeze resistances on the heat exchangers.

WARNING:
As regards the power supply of the Mr. Slim condensing units, a separate power supply must be provided on site for the s-AIRME-G07 units, following the instructions in the installation manual of the Mr. Slim condensing units.
It is forbidden to connect Mr. Slim condensing units to the switchboard of the s-AIRME-G07 units.

4.5.2 Control circuit interlocking

It is imperative to always check the wiring diagram before completing the connections: In the electrical panel are some cables and terminals, indicated in orange, that remain powered even with the power disconnector open (circuits excluded).

In order for the guarantee to be valid:
the unit input connectors (remote ON/OFF, fire-fighting, etc.) must be clean and single contacts for each unit (never make a parallel connection to more than one machine with a single enable).
Below is an example of correct and incorrect connection.



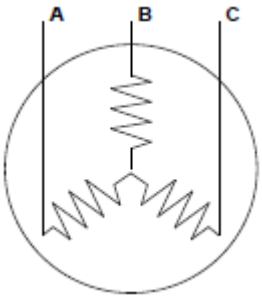
It is advisable to keep the power cables separate from the control cables. Otherwise, screened cables should be used. To make serial connections, use only screened cables with characteristic impedance of 120 ohm. The maximum length of the cable that connects safety devices to the farthest away unit must not exceed 1000 metres. **Input voltage phase difference.**

Do not operate the unit when the voltage phase difference is greater than 2%. Use the following formula to check:

$$\%\, difference = \frac{\text{Max voltage difference from the average}}{average\ voltage} * 100$$

Example: rated mains voltage 400 - 3 - 50
AB = 409 V; BC = 398 V; AC 396 V
average voltage = (409 + 398 + 396) / 3 = 401 V

$$\%\, difference = \frac{(409 - 401)}{401} * 100 = 1.99$$



INFORMATION:
If the mains voltage has a phase difference greater than 2%, contact the electricity company. If the unit is operated with a voltage phase difference of more than 2% THE GUARANTEE SHALL BE CONSIDERED NULL AND VOID.
Before starting up the unit, it is advisable to check that electrical systems have been implemented to guarantee conformity with the Electromagnetic Compatibility Directive (2014/30/EU).

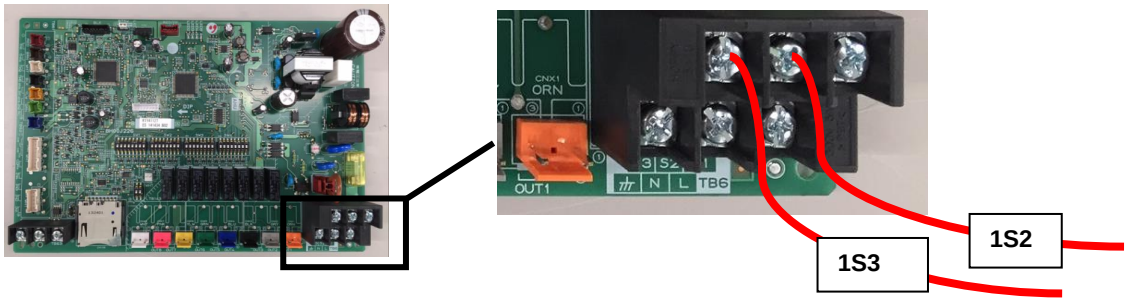
CHECKS AFTER MAKING THE ELECTRICAL CONNECTION

After making connections, make sure that:

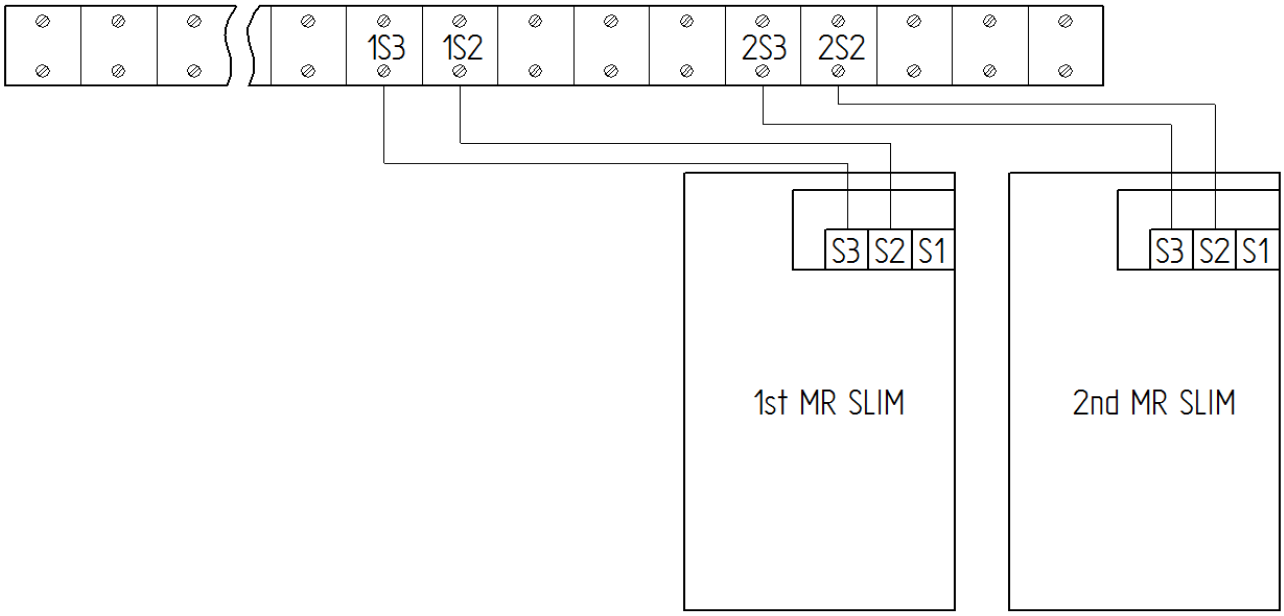
- The earth connection is efficient (use a suitable tool). An incorrect, inefficient or absent connection violates safety standards, is a source of danger and may damage machine components.
- The direction of rotation of the motor is correct. If not, invert the connection of two wires on the input terminals.
- The motor connections and current absorption values are correct.
- Before start-up, check the connections between the circuit breaker and its bar, making sure that the protective pad at the end of the bar is in place.

Signal connections

The Mr. Slim condensing units must be electrically connected to the s-AIRME-G07 units only by means of the cables required to send signals between the PAC-IF interface board and the Mr. Slim condensing units.
As in the case of the cooling circuits, it is also necessary to identify the exact circuit of reference for connection of the communication line between the PAC-IF interface card and the Mr. Slim condensing units.
The cables of the PAC-IF are connected to the terminal board; refer to the wiring diagram for the names of the cables.
Below is an example of an electrical connection:

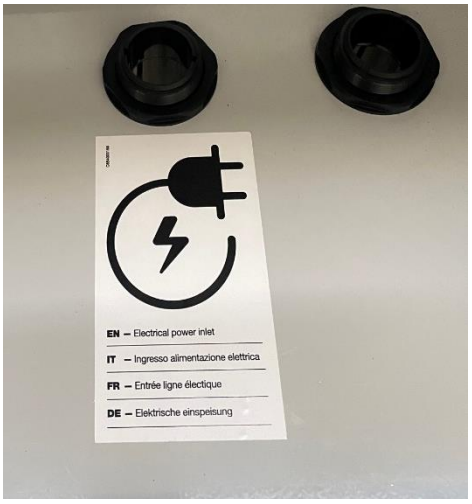


For the types of cables to be used and the connection procedures for the "S2" and S3" communication lines, refer to the installation manual of the Mr. Slim condensing units and the chapter "ELECTRICAL CONNECTIONS" in this manual.



INFORMATION:
Incorrect connection of the signal cables between the PAC-IF interface card and the Mr. Slim condensing units can cause irreparable damage to, and malfunctioning of the connected machines.

The s-AIRME-G07 unit has a cable gland, as shown in the photo, for the signals described above.



WARNING:
All electric work must be designed and performed by qualified personnel.
Before proceeding, disconnect the power supply, making sure that no one will be able to accidentally reconnect it.

WARNING:
The electricity power supply line must be fitted with a general switch for the disconnection of the machine from the energy source.

WARNING:
Comply with the network polarity requirements.

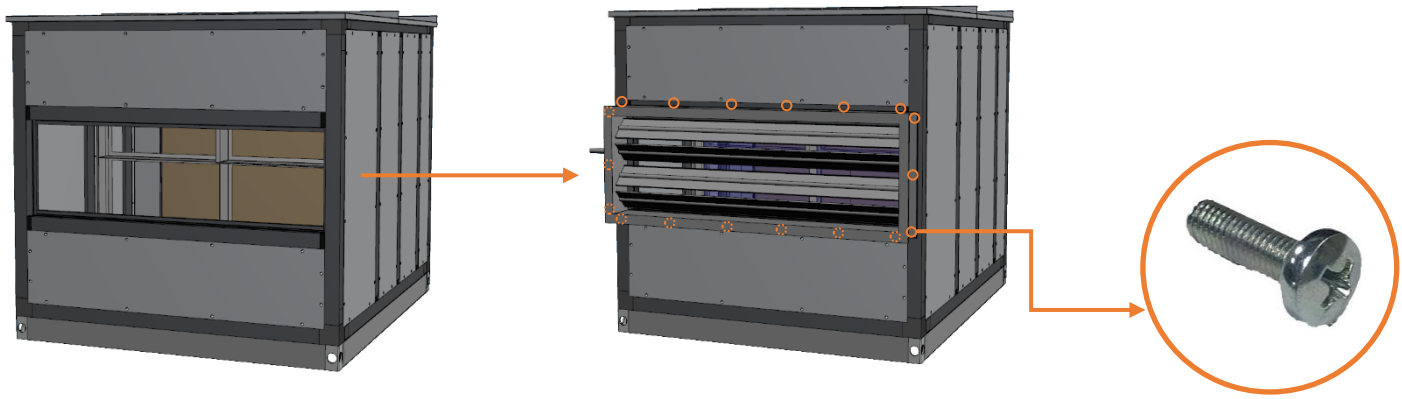
4.6 Air connections

PROHIBITION:
It is forbidden to start up the AIRME unit unless the supply air outlet and the return air outlet are completely ducted or protected by a safety grille.
It must not be possible to come into contact with the fans when these are running.
Do not remove the safety nets in the unit.

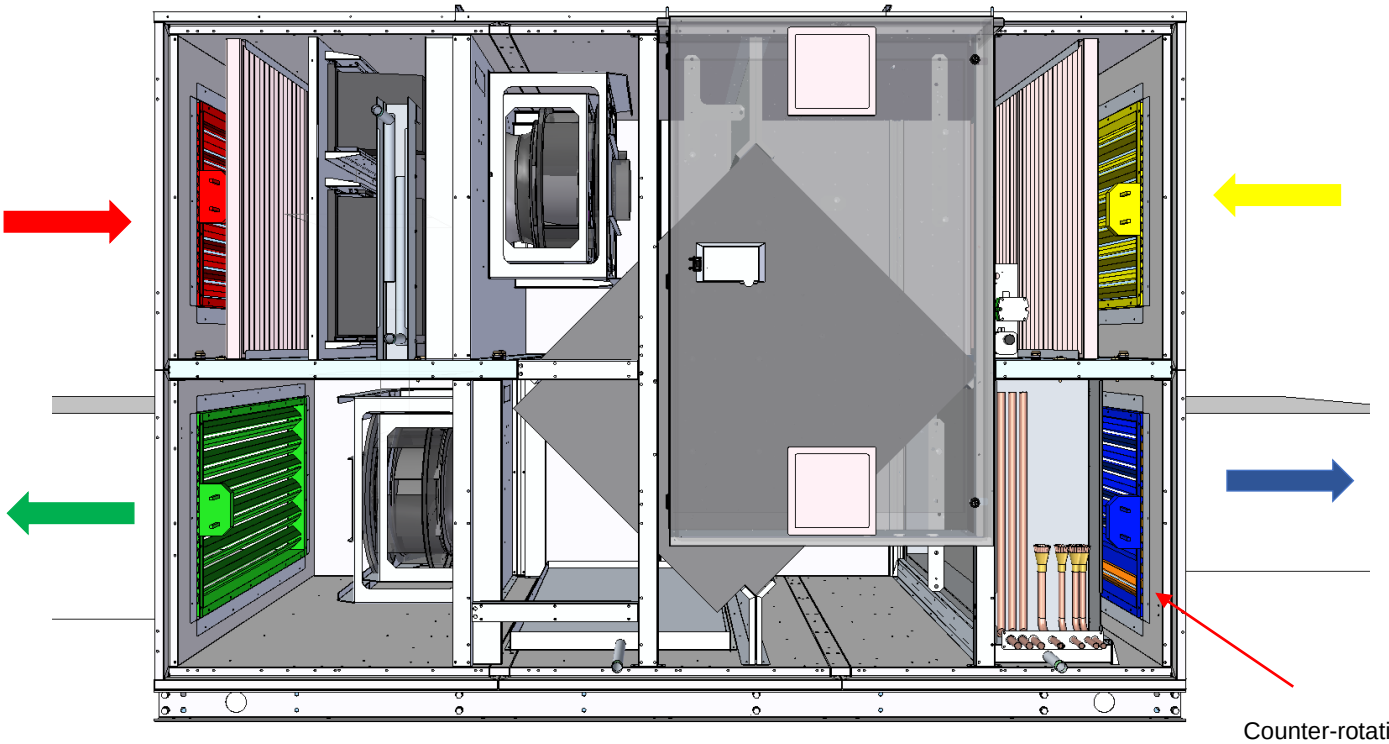
The AIRME units can be connected to the air ducts either directly by means of the aluminium profiles of its structure or by fixing the ducts to the dampers, if ordered.
We recommend the use of insulated channels to avoid energy losses and condensation.
In order to ensure proper connection with the ducts, the following should be done:

- Clean the contact surfaces between the duct and the unit.
- Fit an anti-vibration joint between the unit itself and the duct.
- Apply a gasket on the flanges to ensure their airtightness.
- Tighten the connecting screws carefully.
- Apply silicone on the gasket to increase the strength of the seal and make it watertight in the case that the unit is installed outdoors.
- Ensure the correct electrical potential between the ducts and the s-AIRME-G02/G07 with an earth cable that acts as a bridge on the anti-vibration joint.
- For the ducting of the supply air outlet and the return air outlet, guarantee a straight section of at least one metre before making any bends or branches or putting in anything that could obstruct the air flow, to avoid reducing fan performance.
- After installation, the installed vibration dampers must not be taut as otherwise they could cause damage and the transmission of vibrations.
- Use appropriate brackets to support the ducts, in order to prevent these from weighing on the machine and to ensure that the connections do not come loose and that the structure of the machine remains intact.
- If the exhaust air expulsion port is not ducted, install a suitable rainproof hood to prevent the infiltration of water in the unit.
- If the fresh air expulsion port is not ducted, install a suitable rainproof hood to prevent the infiltration of water in the unit.
- Also install a hood to prevent the ingress of leaves or other dirt.

Flexible joints, dampers and rain covers may be supplied disassembled on pallets or inside the unit and then fixed to the module using the screws supplied, screwed into the inserts, in the position shown on the technical drawing and as per the example sequence shown below.



During normal operation of the unit, the rate of the air flow treated by the fans is sufficient to ensure that no hazardous mixtures can form inside the machine pursuant to the EN 378 standard as indicated in the table in chapter 3.1.3.1.
Units with R32 refrigerant charge are supplied as standard with delivery and return air dampers belonging to class CL4 according to the EN1751:2014 standard, and which close when the unit is not in operation.
When the unit is equipped with the safety damper accessory, the delivery damper is equipped with a **counter-rotating damper blade which must be excluded from the duct**.

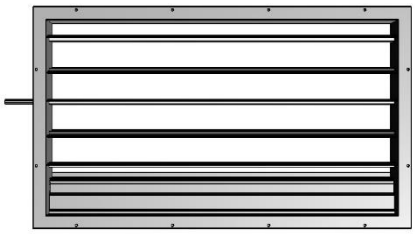
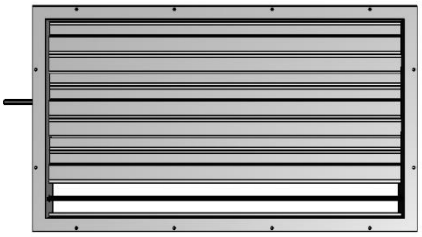


Delivery air

Return air

Fresh air

External air

	
Unit Status: ON • External air damper: open • Ejection damper: open • Return damper: open • Delivery damper: open • Counter-rotating blade (gas disposal): closed • Ventilation: ON • Mr. Slim: ON	Unit Status: OFF • External air damper: closed • Ejection damper: closed • Return damper: closed • Delivery damper: closed • Counter-rotating blade (gas disposal): open • Ventilation: OFF • Mr. Slim: OFF

WARNING:
If there is a loss of refrigerant, call technical assistance before restarting the machine.

WARNING:
Avoid having the ducts putting weight on the machine or any components of the same (frames, panels, pipes, etc...).

4.7 Options

OBLIGATION:
All assembly, positioning and maintenance operations must be carried out with adequate means and by skilled personnel, trained and authorized for this type of manoeuvres.

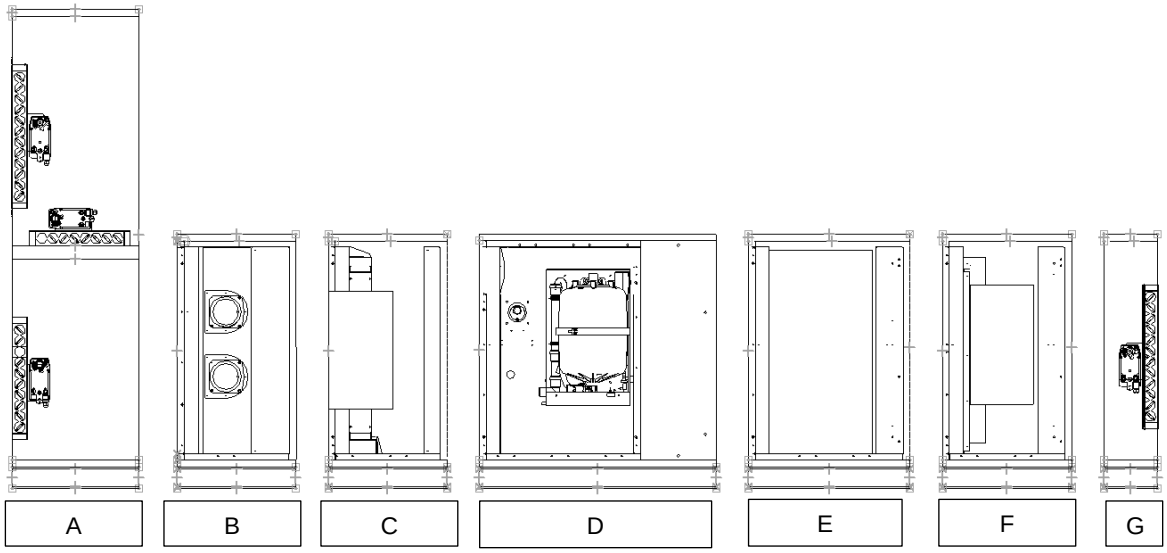
WARNING:
The electrical connections must only be designed and completed by personnel with precise technical competence or specific skills in the field of activity.
Before proceeding, disconnect all power supply sources, making sure that no one may inadvertently re-connect them.
For electrical connections, refer to the electrical diagram of the machine.

OBLIGATION:
Any maintenance and / or replacement operations on the refrigerant circuit must be carried out by qualified personnel.
All work must be carried out in accordance with the "GOOD RULE", according to the current regulations in force in the various countries, taking into account the operating conditions and the uses to which the plant is destined.

INFORMATION:
Design errors and / or errors in the cooling circuit can cause irreparable compressor failure or malfunctions.

Optional extras on additional section

For the AIRME range, most of the optional extras are designed as additional sections to be attached to the base unit in the order shown in the picture below.



LEGEND:
A: 3-way mixing chamber (only for HR-P function)
B: Photocatalytic oxidation sanitation system (PCO)
C: Electric/water post-heating
D: Humidifier
E: Aphonic septa
F: Absolute filters
G: Safety damper (delivery)

Electric pre-heating coil (option mounted in the machine)

In the case of a particularly cold winter the machine must be equipped with the optional "Electric pre-heating coil" which helps to prevent freezing. The unit's control system is tripped automatically when the outdoor air temperature drops below -10 °C, activating the three stages of operation of the coil to increase the air temperature up to 5 °C.

ELECTRIC PRE AND POST-HEATING COILS (CAPACITY CALCULATED FOR A TEMPERATURE DELTA = 5°C)							
	3000	**5000**	**7500**	**10000**	**12500**	**15000**	**20000**
ELECTRIC PRE-HEATING COILS [kW]	5	8	12	16	20	24	32

CONSTRUCTION SPECIFICATIONS:
- IP55
- GALVANISED STEEL FRAME
- AUTOMATIC RESET THERMOSTAT CALIBRATED TO 90 °C
- MANUAL RESET THERMOSTAT CALIBRATED TO 100 °C
- NUMBER OF STAGES = 3

MODEL	**3000**	**5000**	**7500**	**10000**	**12500**	**15000**	**20000**
Weight (kg)	16	21	24	30	33	36	42

Electric post-heating coil (additional section option)

The electric post-heating coil can be used in winter to compensate for the defrost cycles of the outdoor units. In the case of defrost, one or more circuits of the direct expansion coil may temporarily produce cold air instead of the flow of hot air expected during normal operation in this season. The electric post-heating coil is activated during these short defrost cycles to heat the air and compensate for the unpleasant effect that cold air can produce when it enters a room. At the end of the defrost cycle, the direct expansion coil resumes operation as a heating body and the electric post-heating coil is deactivated.
In the B version, the electric post-heating coil can also be used in the summer to compensate for dehumidification.
In the case of a particularly humid climate, the B version can request the direct expansion coil to perform dehumidification, so that the air leaving the coil may reach particularly low values. This means the electric post-heating coil can be used to bring the delivery temperature back to the level required for comfort indoors; the coil regulates the supply of power according to three steps to allow for finer control of the required temperature.
The C and I versions do not have the dehumidification function; for these versions it is not, therefore, possible to use the electric post-heating coil to compensate for dehumidification.

ELECTRIC PRE AND POST-HEATING COILS (CAPACITY CALCULATED FOR A TEMPERATURE DELTA = 5°C)							
	3000	**5000**	**7500**	**10000**	**12500**	**15000**	**20000**
ELECTRIC POST-HEATING COILS [kW]	5	8	12	16	20	24	32

CONSTRUCTION SPECIFICATIONS:
- IP55
- GALVANISED STEEL FRAME
- AUTOMATIC RESET THERMOSTAT CALIBRATED AT 90 °C
- MANUAL RESET THERMOSTAT CALIBRATED AT 100 °C
- NUMBER OF STAGES = 3

MODEL	**3000**	**5000**	**7500**	**10000**	**12500**	**15000**	**20000**
Weight (kg)	12	17	22	29	33	37	51
Length (mm)	550						

Water pre-heating coil (option mounted in the machine)

Like the electric pre-heating coil, a hot water pre-heating coil can be provided. The control system intervenes automatically when the external air temperature falls below
-10°C by modulating the 3-way valve serving the coil to give the air a temperature rise of up to 5°C.

	Pre-heating		
Size of unit	**P [kW]**	**Q [l/h)**	**ΔP [kPa]**
AIRME 3000	5.14	979	28.20
AIRME 5000	8.56	1631	23.20
AIRME 7500	12.84	2447	23.10
AIRME 10000	17.12	3262	13.60
AIRME 12500	21.40	4078	22.10
AIRME 15000	25.68	4893	22.00
AIRME- 20000	34.24	6524	29.40
	AIR	IN: -15°C	OUT: -10°C
	WATER	IN: 45°C	OUT:40°C

MODEL	**3000**	**5000**	**7500**	**10000**	**12500**	**15000**	**20000**
Weight (kg)	12	17	22	29	33	37	51

Water post-heating coil (additional section option)

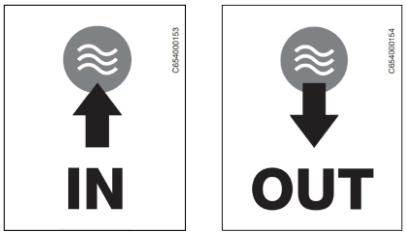
Like the electric post-heating coil, a water post-heating coil can be provided that can bring the delivery temperature back to the values required for comfort indoors. A 3-way modulating valve controls the power supplied by the post-heating coil.
Like the electric post-heating coil, the water post-heating coil can be used in the winter to compensate for the defrost cycles of the outdoor units, or in the summer, only for the B version, to compensate for forced dehumidification when this is required.

	Post-heating		
Size of unit	**P [kW]**	**Q [l/h)**	**ΔP [kPa]**
AIRME 3000	5.22	898	17.00
AIRME 5000	8.71	1497	14.10
AIRME 7500	13.06	2246	14.00
AIRME 10000	17.41	2995	8.30
AIRME 12500	21.77	3744	13.40
AIRME 15000	26.12	4492	13.30
AIRME 20000	34.83	5990	17.70
	AIR	IN: 16°C	OUT:21°C
	WATER	IN: 45°C	OUT:40°C

MODEL	**3000**	**5000**	**7500**	**10000**	**12500**	**15000**	**20000**
Weight (kg)	89	116	119	134	170	188	214
Length (mm)	550						

Connecting the water coils

The AIRME units require hydraulic connections to the condensate drains and to the inlets and outlets of the pre and post-heating coils available as accessories.
The inlet and outlet are marked with these labels affixed directly on the machine:



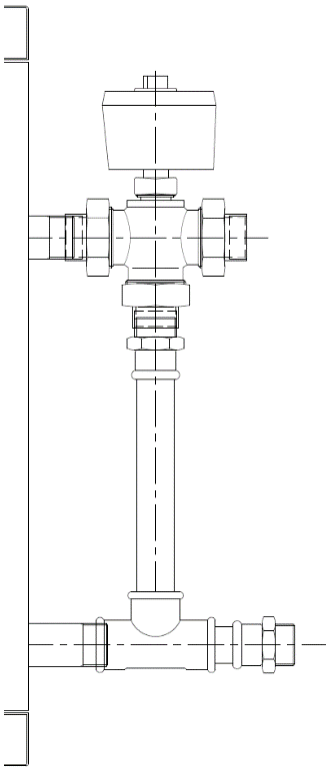
INFORMATION:
Install an expansion vessel with a safety valve in the hydraulic circuit. The hydraulic circuit must be sized according to the applicable laws in force.

The hydraulic circuit must not obstruct the opening of the inspection doors of the AIRME unit, and must not obstruct removal of the heat exchanger.
A cover must be fitted for the servo drive when the unit is installed outdoors.
The servo drive must be installed in an area where the temperature is above – 5°C.

The pre and post-heating water heat exchangers are supplied with a hydraulic kit (as an additional package) consisting of:

- a three-way calibration valve with servo drive;
- pipes to connect the valve to the inlets and outlets of the exchanger;

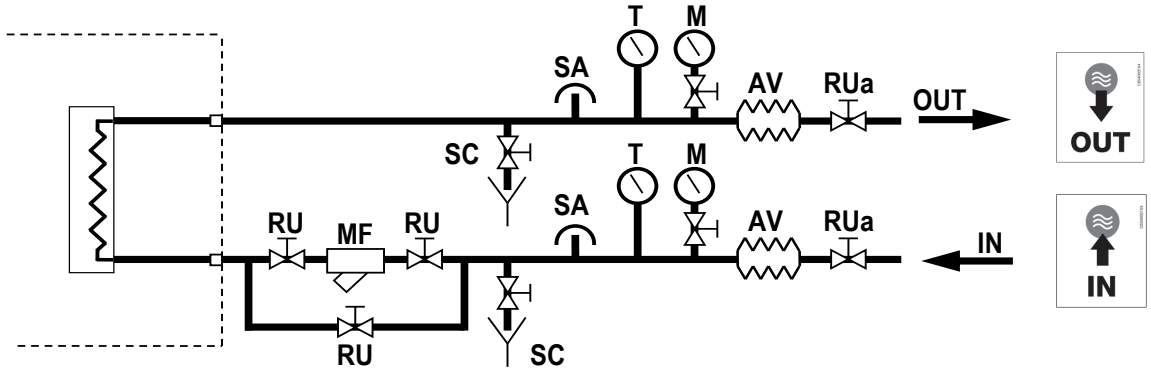
After connecting the hydraulic kit to the manifolds of the coil, make the electrical connection by joining the pair of connectors (see the chapter "JOINING THE SECTIONS").



The dimensions of the connections, both for the pre and post-heating coils, are as follows:

MODEL	3000	5000	7500	10000	12500	15000	20000
Ø IN / OUT	1/2"	1/2"	3/4"	1"	1"	1"	1”1/4

Below are recommendations on design of the hydraulic connection to the coils:



During the design phase, envisage the installation of the following components on the inlet water line:

- **AV - Anti-vibration**: to isolate the vibrations that can be transmitted from the plant.
- **M - Pressure gauge** (with stopcock): indicates the water pressure in the inlet line.
- **T - Thermometer**: indicates the water temperature in the inlet line.
- **SA - Air vent**: to eliminate air in the inlet line.
- **SC - Drain valve**: to drain water out of the plant. To be used also for connecting an external pump for chemical washing.
- **MF - Mains filter:** (with a plant of RU valves for cleaning the filter): for trapping impurities in the plant.

Assemble the following components on the water outlet line:

- **RUa - Shut-off valves**: for shutting off the supply of water to the machine during maintenance.
- **AV - Anti-vibration**: to isolate the vibrations that can be transmitted from the plant.
- **M - Pressure gauge** (with stopcock): indicates the water pressure in the inlet line.
- **T - Thermometer**: indicates the water temperature in the outlet line.
- **SA - Air vent**: to eliminate air in the outlet line.
- **SC - Drain valve**: to drain water out of the plant. To be used also for connecting an external pump for chemical washing.

Install an expansion vessel with a safety valve in the hydraulic circuit. The hydraulic circuit must be sized according to the applicable laws in force.

WARNING:
Maximum operating pressure 10 BAR, including the hydrostatic head – PN10.

The connection pipes must be suitably supported so that they do not weigh down on the machine.
Avoid rigid connections between the machine and the pipes, and install vibration dampers.
For temperatures, minimum and maximum water flow rates and the volumes of water in the heat exchanger hydraulic circuit refer to the technical bulletin.
Any heating elements installed to prevent the pipes from freezing must be kept away from devices, sensors and materials that the heating elements could damage or cause to malfunction (for example, temperature sensors, plastic components and power cables).

Air filters (option fitted in the machine)

In its standard configuration, the machine is supplied with ISO COARSE 55% - ISO 16890 (G4 - EN 779:2012) synthetic filters + EPM1 50% - ISO 16890 (F7 - EN 779:2012) rigid bag filters on the delivery line, and ISO COARSE 55% - ISO 16890 (G4 - EN 779:2012) synthetic filters on the return line.
Upon request and as an OPTION it is possible to provide a higher degree of filtration on the delivery line by requesting rigid bag filters EPM01 70% - ISO 16890 (F8 - EN 779:2012) or EPM1 85% - ISO 16890 (F9 - EN 779:2012) or activated carbon rigid bag filters to ensure a better deodorising effect, or even electrostatic filters.
In the interest of ensuring the high performance and energy efficiency of the air handling unit, there must be a differential pressure switch for each filtering section of the control system of the AIRME units.
The controller triggers an alarm when the pressure switch detects a drop in pressure that exceeds the maximum permitted value, indicating the filter concerned.
After activation of the filter alarm, it is necessary to clean or replace the filter(s) concerned.

Absolute air filters (additional section option)

For applications requiring this, it is possible to equip the machine with a module containing absolute filters on the delivery line in class H14 (classification according to EN1822).

MODEL	3000	5000	7500	10000	12500	15000	20000
Weight (kg)	91	129	142	167	195	237	280
Length (mm)	600						

Rainproof hood(additional section option) and mesh on external air intake/ejection

A rainproof hood with integrated anti-bird mesh is available on request for the external air intake/ejection. The accessory prevents small objects or drops of rain water from entering the machine when there are no ducts connected to the external air intake/ejection and the machine is installed outdoors.
The unit is supplied with the grid already mounted.

MODEL	3000	5000	7500	10000	12500	15000	20000
Weight (kg)	4	7	10	14	17	19	26
Length (mm)	360						

Roof

The "painted roof" accessory must be used as the main form of protection against bad weather when the machine is installed outdoors.
The roof is supplied mounted on the unit and on the individual accessory module if selected.

AR/MF	3000	5000	7500	10000	12500	15000	20000
Weight (kg)	14	19	21	26	29	32	36
Height (mm)	21						

HR-P	3000	5000	7500	10000	12500	15000
Weight (kg)	21	29	34	46	52	60
Height (mm)	21					

External, supply, return and exhaust air dampers(option mounted in the machine)

If the airflows in the network of air distribution ducts are shut off when the machine is stopped, it is possible to select dampers on the external air intake, on the air supply line, on the air return line and on the exhaust air line. These are available as optional accessories. The dampers are installed inside the machine with a servo drive for opening and closing. The control system of the machine is connected to the servo drives which open and close the dampers according to the control logic.
The individual dampers can be purchased separately.

Weight (kg)							
MODEL	**3000**	**5000**	**7500**	**10000**	**12500**	**15000**	**20000**
Supply air inlet damper	7	9	10	10	18	18	18
Supply air outlet damper							
Return air inlet damper							
Return air outlet damper							

Increased useful static pressure of the fans

If a useful static head higher than the 300 Pa of the standard configuration is required for the air distribution ducts, an oversize version of both the delivery fan and the return fan can be provided to increase the useful static pressure up to 500 Pa.

3 damper mixing chamber section (additional section option)

If recirculation of a part of the extracted air is required, an additional section with motorised recirculation damper is available as an accessory.
The recirculation damper can be controlled in different ways:
With CO2 probe, also available as an accessory. If the amount of CO2 in the extracted air exceeds the threshold set on the AIRME controller, the external air intake damper will open and the recirculation damper will close, while if the CO2 remains below the threshold the recirculation damper will open proportionally to reduce energy consumption.

Start-up with total recirculation. The unit starts up with the external air intake damper closed and the recirculation damper completely open. When the set conditions are reached, the machine starts working entirely with external air.

MODEL	**3000**	**5000**	**7500**	**10000**	**12500**	**15000**
Weight (kg)	150	200	270	340	380	420
Length (mm)	490		590			

CO_2 Sensor

The AIRME control system can be integrated with a CO_2 sensor. Once a threshold level has been set for the CO_2 content in the return air, the AIRME control system operates in the following ways:

- Air flow modulation on two levels, minimum and maximum: the air flow of the fans is set to the minimum level when the CO_2 is below the threshold level, and automatically set to the maximum level when the threshold is exceeded.
- Modulation in combination with the recirculation damper accessory: in this case the fans maintain the fixed flow rate while the recirculation damper is opened and closed as described in the paragraph on the accessory “Recirculation damper section”.

Aphonic septa (additional section option)

A module containing silencers can be applied to the delivery of the unit to reduce the noise generated by the machine.

MODEL	**3000**	**5000**	**7500**	**10000**	**12500**	**15000**	**20000**
Weight (kg)	92	122	143	159	185	206	237
Length (mm)	750						

PCO photocatalytic oxidation sanitation system (additional section option)

The PCO accessory consists of a module containing a number of UV-C lamps depending on the air flow rate handled, which by means of a photocatalytic oxidation process purify the air of microbial contamination and other impurities such as bacteria,

mould, allergens, organic and volatile compounds, odours, and ultra-fine dust, which cannot be captured by conventional static filters.

MODEL	3000	5000	7500	10000	12500	15000	20000
Weight (kg)	65	78	88	100	109	119	131
Length (mm)	550						

Immersed electrode humidifier (additional section option)

If humidification is required indoors, there is an additional section available as an accessory that has an immersed electrode steam generator connected to a steam distribution ramp located in the section for the supply of air. The section comes with a drip tray. The delivered steam flow rate is calculated according to the size of the AIRME unit and the power consumption of the steam generator is defined in relation to this. Specific probes detect the humidity to allow the main controller of the AIRME to regulate the steam generator accordingly by means of a special 0-10V signal.
Humidity control can be for the flow of supply or return.
The section is designed for quick mechanical and electrical connection. In this case, the switchboard of the AIRME is supplied with the power and protection parts required for use of the steam generator.

Before positioning and installation of the accessory, read the chapter "INSTALLING THE UNIT ON SITE". Follow all the instructions so as not to cause malfunctioning or breakage of the unit.
The steam generator needs to be connected to the hydraulic circuit for the supply and draining of water; observe the instructions in the user manual provided with the steam generator accessory.
Refer to the user manual of the steam generator for the specifications of the supply and draining of water.
The accessory is powered directly from the switchboard of the AIRME unit.

See the chapter "JOINING THE SECTIONS" for the electrical and mechanical connection between the humidification section and the AIRME unit.

STEAM HUMIDIFIER (flow calculated for a dx = 2 g/kg THAT PERMITS RHsupply = 50 % ALSO WITH AN EXTERNAL T OF = -5°C)							
AIRME size	**3000**	**5000**	**7500**	**10000**	**12500**	**15000**	**20000**
Nominal production of steam [kg/h]	8	15	18	25	35	45	65
Power absorption [kW]	6	11.2	13.5	18.7	26.2	33.7	48.7
Current absorption [A]	8.7	16.2	19.5	27.1	37.9	48.7	70.4
Power supply [V]	3x400V 50/60Hz						
Number of distributors	1	1	1	1	1	1	2
Diameter of distributors [mm]	30	30	30	40	40	40	40
Length of distributor [mm]	450	650	850	1050	1250	1250	1650

Construction specifications:

- Immersed electrode steam generator type KUE (SIZES 3000 to 15000) / UE***X (SIZE 20000).
- Additional section with structure and panelling same as CTA.
- Additional section containing: condensate collection tank, steam distributor.
- Steam generator in a compartment of the additional section

The section is equipped with a condensate collection tank for conveying the condensed steam towards the condensate drain of the tank. It is therefore necessary to set up a specific connection to the condensate drain on site, following the instructions in the chapter "hydraulic connection of the condensate drain".
The dimensional drawing of the "steam humidifier" section is supplied together with all the accompanying documentation.

MODEL	3000	5000	7500	10000	12500	15000	20000
Weight (kg)	125	160	178	205	230	266	365
Length (mm)	1100						1500

5 DISCLOSURE REQUIREMENT (EU) NO. 1253/2014

AIRME 3000 AR/MF Δp = 500 Pa Ecodesign information requirements		
Manufacturer's name		Mitsubishi Electric Hydronics & IT Cooling Systems S.p.A.
Model		AIRME 3000 AR / MF
Typology		NRVU, UVU
Nominal flow rate	[m³/s]	0.83
SFP_{int}	[W/(m³/s)]	225
SFP_{int} limit	[W/(m³/s)]	230
Face velocity	[m/s]	1.09
Maximum external leakage rate (-400Pa)	[%]	1.32
Maximum external leakage rate (+400Pa)	[%]	1.45
Sound power level	[db(A)]	82
Internet address for disassembly instructions		https://www.melcohit.com/en
		SUPPLY AIR FLOW
Type of drive for variable speed		Installed
Nominal flow rate	[m³/s]	0.83
Effective electric power input	[kW]	1.13
Nominal external pressure	[Pa]	500
Internal pressure drop of ventilation components	[Pa]	242
Static efficiency of fan in accordance with Regulation (EU) No 327/2011	[%]	54.8
Filter energy class(1)		A

(1) = According to Eurovent 4/21

AIRME 5000 AR/MF Δp = 500 Pa Ecodesign information requirements		
Manufacturer's name		Mitsubishi Electric Hydronics & IT Cooling Systems S.p.A.
Model		AIRME 5000 AR / MF
Typology		NRVU, UVU
Nominal flow rate	[m³/s]	1.39
SFP_{int}	[W/(m³/s)]	225
SFP_{int} limit	[W/(m³/s)]	230
Face velocity	[m/s]	1.26
Maximum external leakage rate (-400Pa)	[%]	0.98
Maximum external leakage rate (+400Pa)	[%]	1.08
Sound power level	[db(A)]	89
Internet address for disassembly instructions		https://www.melcohit.com/en
		SUPPLY AIR FLOW
Type of drive for variable speed		Installed
Nominal flow rate	[m³/s]	1.39
Effective electric power input	[kW]	1.98
Nominal external pressure	[Pa]	500
Internal pressure drop of ventilation components	[Pa]	266
Static efficiency of fan in accordance with Regulation (EU) No 327/2011	[%]	53.7
Filter energy class(1)		A

(1) = According to Eurovent 4/21

AIRME 7500 AR/MF Δp = 500 Pa Ecodesign information requirements		
Manufacturer's name		Mitsubishi Electric Hydronics & IT Cooling Systems S.p.A.
Model		AIRME 7500 AR / MF
Typology		NRVU, UVU
Nominal flow rate	[m³/s]	2.08
SFP_{int}	[W/(m³/s)]	225
SFP_{int} limit	[W/(m³/s)]	230
Face velocity	[m/s]	1.40
Maximum external leakage rate (-400Pa)	[%]	0.77
Maximum external leakage rate (+400Pa)	[%]	0.84
Sound power level	[db(A)]	76
Internet address for disassembly instructions		https://www.melcohit.com/en
		SUPPLY AIR FLOW
Type of drive for variable speed		Installed
Nominal flow rate	[m³/s]	2.08
Effective electric power input	[kW]	2.28
Nominal external pressure	[Pa]	500
Internal pressure drop of ventilation components	[Pa]	273
Static efficiency of fan in accordance with Regulation (EU) No 327/2011	[%]	70.6
Filter energy class(1)		A

(1) = According to Eurovent 4/21

AIRME 10000 AR/MF Δp = 500 Pa Ecodesign information requirements		
Manufacturer's name		Mitsubishi Electric Hydronics & IT Cooling Systems S.p.A.
Model		AIRME 10000 AR / MF
Typology		NRVU, UVU
Nominal flow rate	[m³/s]	2.78
SFP_{int}	[W/(m³/s)]	225
SFP_{int} limit	[W/(m³/s)]	230
Face velocity	[m/s]	1.46
Maximum external leakage rate (-400Pa)	[%]	0.69
Maximum external leakage rate (+400Pa)	[%]	0.76
Sound power level	[db(A)]	78
Internet address for disassembly instructions		https://www.melcohit.com/en
		SUPPLY AIR FLOW
Type of drive for variable speed		Installed
Nominal flow rate	[m³/s]	2.78
Effective electric power input	[kW]	3.03
Nominal external pressure	[Pa]	500
Internal pressure drop of ventilation components	[Pa]	283
Static efficiency of fan in accordance with Regulation (EU) No 327/2011	[%]	71.8
Filter energy class(1)		A

(1) = According to Eurovent 4/21

AIRME 12500 AR/MF Δp = 500 Pa Ecodesign information requirements		
Manufacturer's name		Mitsubishi Electric Hydronics & IT Cooling Systems S.p.A.
Model		AIRME 12500 AR / MF
Typology		NRVU, UVU
Nominal flow rate	[m³/s]	3.47
SFP_{int}	[W/(m³/s)]	225
SFP_{int} limit	[W/(m³/s)]	230
Face velocity	[m/s]	1.52
Maximum external leakage rate (-400Pa)	[%]	0.62
Maximum external leakage rate (+400Pa)	[%]	0.68
Sound power level	[db(A)]	80
Internet address for disassembly instructions		https://www.melcohit.com/en
		SUPPLY AIR FLOW
Type of drive for variable speed		Installed
Nominal flow rate	[m³/s]	3.47
Effective electric power input	[kW]	4.02
Nominal external pressure	[Pa]	500
Internal pressure drop of ventilation components	[Pa]	283
Static efficiency of fan in accordance with Regulation (EU) No 327/2011	[%]	67.6
Filter energy class(1)		A

(1) = According to Eurovent 4/21

AIRME 15000 AR/MF Δp = 500 Pa Ecodesign information requirements		
Manufacturer's name		Mitsubishi Electric Hydronics & IT Cooling Systems S.p.A.
Model		AIRME 15000 AR / MF
Typology		NRVU, UVU
Nominal flow rate	[m³/s]	4.17
SFP_{int}	[W/(m³/s)]	225
SFP_{int} limit	[W/(m³/s)]	230
Face velocity	[m/s]	1.51
Maximum external leakage rate (-400Pa)	[%]	0.58
Maximum external leakage rate (+400Pa)	[%]	0.64
Sound power level	[db(A)]	79
Internet address for disassembly instructions		https://www.melcohit.com/en
		SUPPLY AIR FLOW
Type of drive for variable speed		Installed
Nominal flow rate	[m³/s]	4.17
Effective electric power input	[kW]	4.69
Nominal external pressure	[Pa]	500
Internal pressure drop of ventilation components	[Pa]	293
Static efficiency of fan in accordance with Regulation (EU) No 327/2011	[%]	70.5
Filter energy class(1)		A

(1) = According to Eurovent 4/21

AIRME 20000 AR/MF Δp = 500 Pa Ecodesign information requirements		
Manufacturer's name		Mitsubishi Electric Hydronics & IT Cooling Systems S.p.A.
Model		AIRME 20000 AR / MF
Typology		NRVU, UVU
Nominal flow rate	[m³/s]	5.56
SFP_{int}	[W/(m³/s)]	225
SFP_{int} limit	[W/(m³/s)]	230
Face velocity	[m/s]	1.66
Maximum external leakage rate (-400Pa)	[%]	0.49
Maximum external leakage rate (+400Pa)	[%]	0.54
Sound power level	[db(A)]	81
Internet address for disassembly instructions		https://www.melcohit.com/en
		SUPPLY AIR FLOW
Type of drive for variable speed		Installed
Nominal flow rate	[m³/s]	5.56
Effective electric power input	[kW]	6.19
Nominal external pressure	[Pa]	500
Internal pressure drop of ventilation components	[Pa]	299
Static efficiency of fan in accordance with Regulation (EU) No 327/2011	[%]	71.8
Filter energy class(1)		A

(1) = According to Eurovent 4/21

AIRME 3000 HR-P Δp = 500 Pa Ecodesign information requirements			
Manufacturer's name		Mitsubishi Electric Hydronics & IT Cooling Systems S.p.A.	
Model		AIRME 3000 HR-P	
Typology		NRVU, UVU	
Type of HRS		Cross flow heat recovery	
Thermal efficiency of heat recovery	[%]	73.2	
Nominal flow rate	[m³/s]	0.83	
SFP_{int}	[W/(m³/s)]	1010	
SFP_{int} limit	[W/(m³/s)]	1035	
Face velocity	[m/s]	1.18	
Maximum external leakage rate (-400Pa)	[%]	2.67	
Maximum external leakage rate (+400Pa)	[%]	2.94	
Maximum internal leakage rate (+250Pa)	[%]	0.5	
Sound power level	[db(A)]	84	
Internet address for disassembly instructions		https://www.melcohit.com/en	
		SUPPLY AIR FLOW	**EXHAUST AIR FLOW**
Type of drive for variable speed		Installed	Installed
Nominal flow rate	[m³/s]	0.83	0.83
Effective electric power input	[kW]	1.45	1.12
Nominal external pressure	[Pa]	500	500
Internal pressure drop of ventilation components	[Pa]	438	240
Static efficiency of fan in accordance with Regulation (EU) No 327/2011	[%]	53.9	55.1
Filter energy class(1)		A	-

(1) = According to Eurovent 4/21

AIRME 5000 HR-P Δp = 500 Pa Ecodesign information requirements			
Manufacturer's name		Mitsubishi Electric Hydronics & IT Cooling Systems S.p.A.	
Model		AIRME 5000 HR-P	
Typology		NRVU, UVU	
Type of HRS		Cross flow heat recovery	
Thermal efficiency of heat recovery	[%]	73.2	
Nominal flow rate	[m³/s]	1.39	
SFP_{int}	[W/(m³/s)]	936	
SFP_{int} limit	[W/(m³/s)]	940	
Face velocity	[m/s]	1.37	
Maximum external leakage rate (-400Pa)	[%]	1.91	
Maximum external leakage rate (+400Pa)	[%]	2.10	
Maximum internal leakage rate (+250Pa)	[%]	0.5	
Sound power level	[db(A)]	92	
Internet address for disassembly instructions		https://www.melcohit.com/en	
		SUPPLY AIR FLOW	**EXHAUST AIR FLOW**
Type of drive for variable speed		Installed	Installed
Nominal flow rate	[m³/s]	1.39	1.39
Effective electric power input	[kW]	2.60	2.06
Nominal external pressure	[Pa]	500	500
Internal pressure drop of ventilation components	[Pa]	510	299
Static efficiency of fan in accordance with Regulation (EU) No 327/2011	[%]	53.9	53.9
Filter energy class(1)		A	-

(1) = According to Eurovent 4/21

AIRME 7500 HR-P Δp = 500 Pa Ecodesign information requirements			
Manufacturer's name		Mitsubishi Electric Hydronics & IT Cooling Systems S.p.A.	
Model		AIRME 7500 HR-P	
Typology		NRVU, UVU	
Type of HRS		Cross flow heat recovery	
Thermal efficiency of heat recovery	[%]	74.6	
Nominal flow rate	[m³/s]	2.08	
SFP_{int}	[W/(m³/s)]	830	
SFP_{int} limit	[W/(m³/s)]	848	
Face velocity	[m/s]	1.43	
Maximum external leakage rate (-400Pa)	[%]	1.69	
Maximum external leakage rate (+400Pa)	[%]	1.85	
Maximum internal leakage rate (+250Pa)	[%]	0.5	
Sound power level	[db(A)]	79	
Internet address for disassembly instructions		https://www.melcohit.com/en	
		SUPPLY AIR FLOW	**EXHAUST AIR FLOW**
Type of drive for variable speed		Installed	Installed
Nominal flow rate	[m³/s]	2.08	2.08
Effective electric power input	[kW]	3.09	2.41
Nominal external pressure	[Pa]	500	500
Internal pressure drop of ventilation components	[Pa]	521	313
Static efficiency of fan in accordance with Regulation (EU) No 327/2011	[%]	69.9	70.4
Filter energy class(1)		A	-

(1) = According to Eurovent 4/21

AIRME 10000 HR-P Δp = 500 Pa Ecodesign information requirements			
Manufacturer's name		Mitsubishi Electric Hydronics & IT Cooling Systems S.p.A.	
Model		AIRME 10000 HR-P	
Typology		NRVU, UVU	
Type of HRS		Cross flow heat recovery	
Thermal efficiency of heat recovery	[%]	73.8	
Nominal flow rate	[m³/s]	2.78	
SFP_{int}	[W/(m³/s)]	810	
SFP_{int} limit	[W/(m³/s)]	824	
Face velocity	[m/s]	1.51	
Maximum external leakage rate (-400Pa)	[%]	1.59	
Maximum external leakage rate (+400Pa)	[%]	1.74	
Maximum internal leakage rate (+250Pa)	[%]	0.5	
Sound power level	[db(A)]	80	
Internet address for disassembly instructions		https://www.melcohit.com/en	
		SUPPLY AIR FLOW	**EXHAUST AIR FLOW**
Type of drive for variable speed		Installed	Installed
Nominal flow rate	[m³/s]	2.78	2.78
Effective electric power input	[kW]	4.83	2.96
Nominal external pressure	[Pa]	500	500
Internal pressure drop of ventilation components	[Pa]	489	265
Static efficiency of fan in accordance with Regulation (EU) No 327/2011	[%]	56.9	71.8
Filter energy class(1)		A	-

(1) = According to Eurovent 4/21

AIRME 12500 HR-P Δp = 500 Pa Ecodesign information requirements			
Manufacturer's name		Mitsubishi Electric Hydronics & IT Cooling Systems S.p.A.	
Model		AIRME 12500 HR-P	
Typology		NRVU, UVU	
Type of HRS		Cross flow heat recovery	
Thermal efficiency of heat recovery	[%]	73.5	
Nominal flow rate	[m³/s]	3.47	
SFP_{int}	[W/(m³/s)]	810	
SFP_{int} limit	[W/(m³/s)]	815	
Face velocity	[m/s]	1.54	
Maximum external leakage rate (-400Pa)	[%]	1.46	
Maximum external leakage rate (+400Pa)	[%]	1.61	
Maximum internal leakage rate (+250Pa)	[%]	0.5	
Sound power level	[db(A)]	81	
Internet address for disassembly instructions		https://www.melcohit.com/en	
		SUPPLY AIR FLOW	**EXHAUST AIR FLOW**
Type of drive for variable speed		Installed	Installed
Nominal flow rate	[m³/s]	3.47	3.47
Effective electric power input	[kW]	5.58	4.18
Nominal external pressure	[Pa]	500	500
Internal pressure drop of ventilation components	[Pa]	522	309
Static efficiency of fan in accordance with Regulation (EU) No 327/2011	[%]	63.6	67.1
Filter energy class(1)		A	-

(1) = According to Eurovent 4/21

AIRME 15000 HR-P Δp = 500 Pa Ecodesign information requirements			
Manufacturer's name		Mitsubishi Electric Hydronics & IT Cooling Systems S.p.A.	
Model		AIRME 15000 HR-P	
Typology		NRVU, UVU	
Type of HRS		Cross flow heat recovery	
Thermal efficiency of heat recovery	[%]	73.3	
Nominal flow rate	[m³/s]	4.17	
SFP_{int}	[W/(m³/s)]	780	
SFP_{int} limit	[W/(m³/s)]	806	
Face velocity	[m/s]	1.68	
Maximum external leakage rate (-400Pa)	[%]	1.33	
Maximum external leakage rate (+400Pa)	[%]	1.46	
Maximum internal leakage rate (+250Pa)	[%]	0.5	
Sound power level	[db(A)]	81	
Internet address for disassembly instructions		https://www.melcohit.com/en	
		SUPPLY AIR FLOW	**EXHAUST AIR FLOW**
Type of drive for variable speed		Installed	Installed
Nominal flow rate	[m³/s]	4.17	4.17
Effective electric power input	[kW]	6.12	4.67
Nominal external pressure	[Pa]	500	500
Internal pressure drop of ventilation components	[Pa]	513	290
Static efficiency of fan in accordance with Regulation (EU) No 327/2011	[%]	68.9	70.5
Filter energy class(1)		A	-

(1) = According to Eurovent 4/21

6 PRE-COMMISSIONING

Before starting the unit (operation to be carried out by a MEHITS authorised support centre), the installer/customer must ensure that the following has been checked:

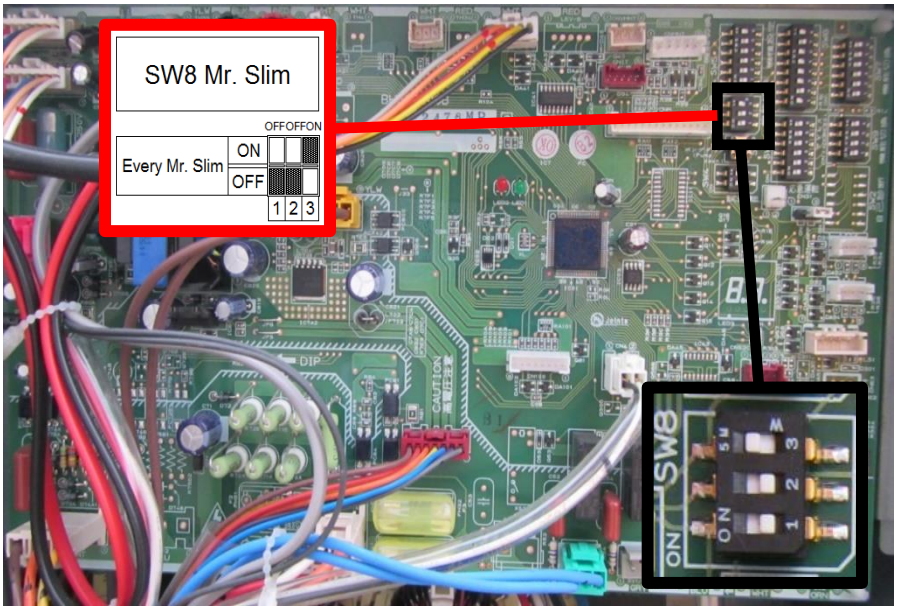
- Correctness of the electric connections.
- Absence of leaks in the cooling circuit (if direct expansion coil installed).
- Compliance of hydraulic connections (if water coils installed).
- Hydraulic system liquid pressure and charge (if water coils installed).
- Operation of the pumping systems (if water coils installed).
- Open the fan compartment and check that no objects have been left that could damage the fans or other system components.
- Check that the air ducts are not obstructed (motor-driven fire dampers, manual dampers, etc.).
- Make sure that all differential pressure transducer connections have been completed (units with constant pressure ventilation control).
- Check that the condensate drain has been suitably prepared and that the procedure described in this manual has been carried out.
- Check the filters for cleanliness. In fact, in some cases the units are only switched on in ventilation mode long before the first start-up. This causes the filters to become dirty.

The Mr. Slim units and the s-AIRME-G07 unit must be properly positioned according to the instructions given in the respective manuals.

Access the electronic board of all the Mr. Slim units and set the dip switches according to the following indications (extract from the Mitsubishi Electric manual "Interface (Cased) PAC-IF013B-E PAC-SIF013B-E").

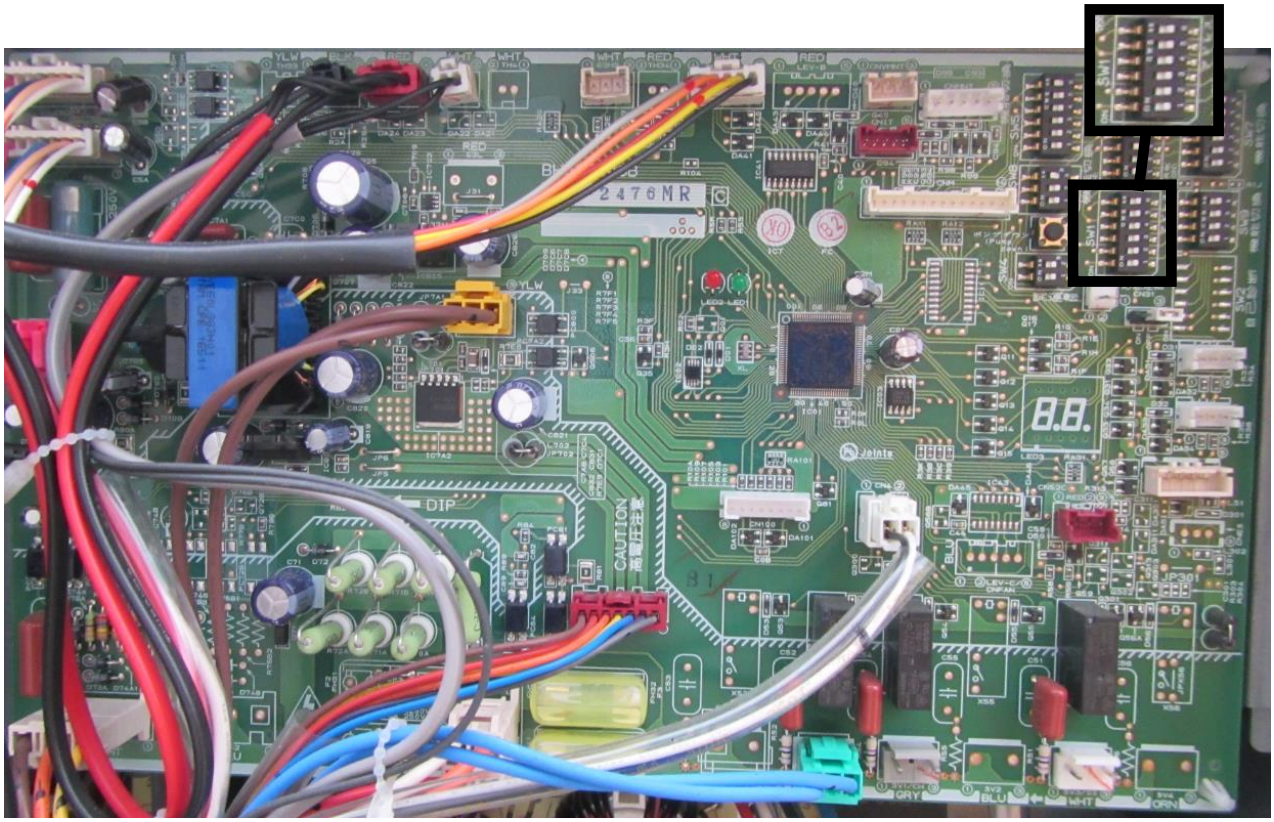
Outdoor unit DIP switch settings (when using separate interface unit/outdoor unit power supplies only)	ON / OFF — 1 2 3 (SW8) Set the SW8-3 to ON.

Below is the detail of the control board of a Mr. Slim unit with the DIP SWITCH SW8-3 in the position indicated in the aforementioned Mitsubishi Electric manual.



Each Mr. Slim unit must also be "addressed". Addressing is performed by positioning the DIP SWITCHES SW1 of the control board of the Mr. Slim unit as indicated below.

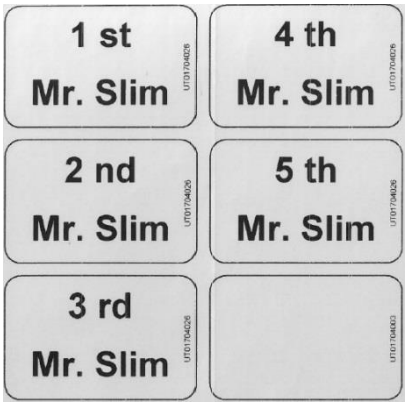
Mr. Slim adress	SW 1						
0	1st Mr. Slim	ON					
		OFF	■	■	■	■	
			3	4	5	6	
1	2nd Mr. Slim	ON	■				
		OFF		■	■	■	
			3	4	5	6	
2	3rd Mr. Slim	ON		■			
		OFF	■		■	■	
			3	4	5	6	
3	4th Mr. Slim	ON	■	■			
		OFF			■	■	
			3	4	5	6	
4	5th Mr. Slim	ON			■		
		OFF	■	■		■	
			3	4	5	6	



Refer to the documentation provided with the Mr. Slim units for further information.

Affix the adhesive label provided with the documentation in the s-AIRME-G07 unit on the individual Mr. Slim units (in the main section together with the technical documentation).

Avoid sticking the adhesive label on parts of the machine that can be accidentally put in a different place (the removable panels, for example).



Connect the communication cable between the individual Mr. Slim units and the corresponding PAC-IF interface board as indicated in this manual.

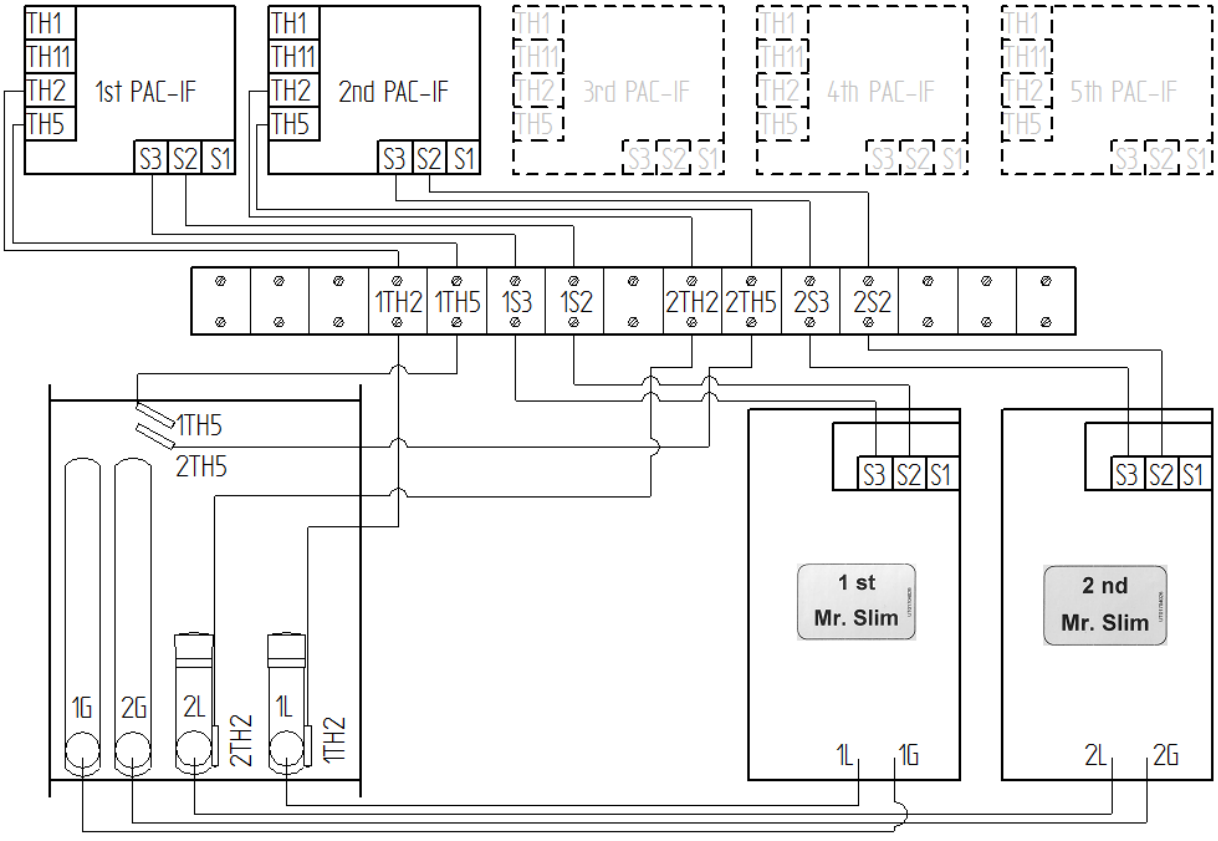
The s-AIRME-G07 unit and the Mr. Slim units must be connected by means of the cooling circuits (refer to this manual and the manual of the Mr. Slim units).

A vacuum must be created in the cooling circuit according to the regulations in force and the instructions in the manual of the Mr. Slim units. Once the vacuum is created, open the valves on the Mr. Slim units.

The s-AIRME-G07 unit must be connected with suitable ducts to the room where the air is to be taken out or sent.

Electrically connect the Mr. Slim units and the s-AIRME-G07 unit independently with reference to their manuals.

See the illustrative diagram below (for making actual connections, refer to the wiring diagram on the machine). In the legend, the number of the circuit is indicated with "#".



Legend:

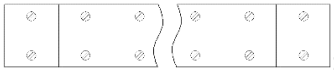
"#"TH2: thermistor for the temperature of the refrigerant in its liquid state. It is located in the relative probe sump welded on the distributor of the exchanger

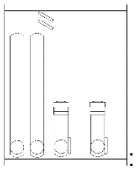
"#"TH5: thermistor for the temperature of the refrigerant in its two-phase state. It is located in the relative probe sump welded in an appropriate position on the circuit

"#"S2: signal connection between the PAC-IF interface card and the Mr. Slim condenser

"#"S3: signal connection between the PAC-IF interface card and the Mr. Slim condenser

"#"G: line of the refrigerant in its gaseous state
"#"L: line of the refrigerant in its liquid state

 : terminal board

 : direct expansion coil

The s-AIRME-G07 unit is delivered with the TH2 and TH5 thermistors, which are required for correct operation of the unit, already in their probe sumps. It is forbidden to change the position the thermistors as to do so could affect correct operation and safety of the unit.

Open the inspection door to find the labels of the probe sumps, as indicated in the following image:

After doing the above, the technician entrusted with starting the machine can proceed with the software checks and then initial start-up.

INFORMATION:
The PAC-IF interface cards in the switchboard of the s-AIRME-G07 unit are addressed at the factory.

7 START

7.1 Calibration and fine-tuning

Commissioning must be carried out by a specialist engineer, in the presence of the installer and an experienced operator.
The specialist engineer will test the equipment, carrying out checks, calibrations and commissioning according to the applicable procedures falling under their responsibility.
The experience Operator must address questions to the specialist Engineer in order to acquire the necessary information to be able to carry out the control and operation activities that will fall under their responsibility.
After the first few days of operation, check the mesh filters of the hydraulic circuits and clean as necessary.
The cooling circuit has been tested by MEHITS in order to detect any refrigerant leaks. The test is carried out after final assembly of the machine at the production plant. An additional test must be carried out before start-up to check for leaks caused by faults created during transport or installation.
Check that the product and installation comply with the local regulations. In particular, make sure that the installation and commissioning certificates have been produced and communicated.

7.2 Machine start-up

- Check maintenance clearances and safety distances;
- Measure the absorption of the fans by comparing the value with the indications in the Data Book;
- Switching on the compressors.
- Check the **power supply voltage.** Check that the mains voltage does not exceed +/- 10% of the machine nominal value.
- Check the **unbalancing between the phases.** Check that the unbalancing between the phases does not exceed 2%. Otherwise, contact the electricity distribution company to solve the problem;
- Measure the absorption of the compressors by comparing the value with the indications in the Data Book;
- With the machine at full power, measure evaporation pressure values, condensation pressure, compressor suction temperature, discharge temperature, overheating and subcooling;
- Check for refrigerant/water leaks.

8 METHOD OF USE

8.1 Provisions and warnings for use

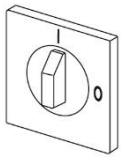
During the daily use of the system, the presence of an operator is not required. The operator must only intervene to carry out periodic checks, in case of emergency, or during the planned start and stop operations.
If these activities are carried out consistently and correctly, good long-term performance of the machine and the equipment will result.

INFORMATION:
Failure to comply with the procedures can cause bad operation of the machine and the system as a whole, resulting in early deterioration.

8.2 Description of controls

The various controls are shown below, with their descriptions and functions. These controls are positioned on the electrical panel.

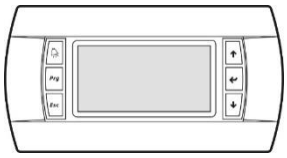
DOOR LOCKING SWITCH



Door lock main switch: opens and closes the power circuit.

- OFF (0) the machine is not powered.
- ON (I) position: the machine is powered.

MICROPROCESSOR DISPLAY



Microprocessor: controls the working process and allows the parameter setting and the monitoring the working conditions.

For details regarding the operation of the machine and its interfaces, refer to the User Manual.

8.3 Emergency stop

Considering that there are no directly accessible moving parts in the machine, there is no need to install an emergency stop device.
In any case, if installed this device would not reduce the risk as the emergency stop would be identical to the normal stop using the main switch.

8.4 Prolonged shutdowns of the machine

WARNING:
DANGER OF FREEZING.
In case of machine stop during the winter period, take the necessary precautions to prevent the water inside the system from freezing.

Before a long period of inactivity:

- disconnect the power supply in order to avoid electrical risks or damage due to lightning;
- prevent the risk of freezing (empty the unit or add antifreeze liquid to the sections of the plant exposed to negative temperatures; keep any antifreeze heaters running);

IT IS advisable that the start-up after the standstill period is performed by a qualified technician. During start-up, follow the instructions in the "COMMISSIONING" section.
Plan the work of the technician in advance in order to avoid any misunderstandings and to ensure that the plant is ready when required.

8.5 Start-up after extended machine inactivity

Start-up after a period of stop must always be supervised by a specialist technician with appropriate knowledge of the control, maintenance, calibration and start-up activities.

9 FIRST DIAGNOSTICS

9.1 Troubleshooting …

N.B. For problems/failures related to the refrigeration circuit, refer to the manual of the condensing unit connected to the unit.

FAULT	PART	POSSIBLE CAUSE/SOLUTION
Noise level	Fan	Unbalanced or loose fan. Check the correct fastening of the fan.
		Contact between impeller and fan outlet
		Outlet damaged
		Foreign bodies in fan
		Input voltage incorrect
		Fan absorption outside limits
		Fan flow rate not stable
	In ducts	Excessive speed in ducts
		Excessive duct turbulence (e.g. due to many bends in the ducts)
		No silencer in the ducts
		No anti-vibration joints
		Anti-vibration joint too tight
Insufficient air flow	Parameters	Check setting of the flow rate setpoint
	Pressure transducer	Check the correct connection of the transducer pressure lines.
		Check that the full scale set in the transducer via dip-switch is equal to the one defined in the unit parameters.
	Fan	Incorrect direction of rotation. Check that the fan/unit power supply is balanced
		Check actual fan rotation speed
		Electrical absorption of the fans
	Ducts	Pressure losses in the ducts exceeding the design requirement (e.g. due to too long ducts, many bends, etc.).
		Dampers closed
		Ducts obstructed
	Filters	Too dirty
	Coils	Too dirty
Flow rate not stable	Parameters	Check setting of the flow rate setpoint
		Change the parameters for flow rate PID control
	Pressure transducer	Check the correct connection of the transducer pressure lines.
		Check that the full scale set in the transducer via dip-switch is equal to the one defined in the unit parameters.
High heating pressure	Fans	Insufficient air flow (see relevant point)
	Refrigerant circuit	Refer to the manual of the external condensing unit (e.g. check gas charge, compressor delivery temperature ...)
	Fans	Insufficient air flow (see relevant point)

FAULT	PART	POSSIBLE CAUSE/SOLUTION
Low cooling pressure	Refrigerant circuit	Refer to the manual of the external condensing unit (e.g. check gas charge, compressor delivery temperature ...)
Insufficient heat capacity	Battery	Incorrect gas/liquid pipe connection
		Coil dirty
		Presence of non-condensate in the direct expansion coil
	Refrigerant circuit	Refer to the manual of the external condensing unit (e.g. check gas charge, compressor delivery temperature ...)
Activation of safety devices	Fans	Check fan voltage and absorption.
No connections between AHU and external condensing units	Power supply	Check that there is power supply on both the AHU and the external condensing units
	Parameters	Check the correct setting of the dip-switches in the PAC-IF boards and in the external condensing units
R32 sensor can no longer be calibrated	R32 sensor	Sensor replacement

INFORMATION:
Refer to the user manual for a list of alarms.

10 MAINTENANCE

10.1 Maintenance instructions

WARNING:
All ordinary and extraordinary maintenance activities must be carried out by specialist personnel appointed by the manufacturer or its authorised representative.

Maintenance operations are fundamental to keep the refrigeration system in perfect working order, not only for purely functional reasons, but also to save energy and ensure safety.

Maintenance activities may only be carried out by personnel with the necessary qualifications in accordance with the local laws in force. It is also reminded that in Europe it is mandatory to comply with EU Regulation 517/2014 (F-Gas) on the prevention of emissions of fluorinated greenhouse gases.

When there are no relevant standards on the use of HFO refrigerants, the Manufacturer requires application and compliance with the provisions of:

- (EC) regulation no. 842/2006, Article 3 on "containment of leaks".
- (EC) regulation no. 1516/2007 on "standard leakage checking requirements".

and the relative domestic laws implementing the European regulations listed above.

Before any kind of maintenance is carried out the following measures must be observed:

- operate with the electrical panel closed;
- the unit must be isolated from the electricity mains using the external main switch, suitable for the insertion of up to 3 padlocks, for locking in the “open” position;
- place a sign saying, "Do not operate - maintenance in progress" on the disconnecting switch open;
- use the appropriate personal protective equipment (hard hat, insulated gloves, protective glasses, safety footwear, etc.);
- equip yourself with tools in good condition and make sure you fully understand the instructions before using them;
- in case of units with R32, take appropriate measures to ensure sufficient airflow into the room (using an external fan or opening windows) to avoid R32 concentrations exceeding the limit;
- in the case of units with R32, check for leaks using a suitable device before starting any operation;
- make sure that there are no flammable materials or possible sources of ignition in the proximity of the work area;
- make sure that fire-fighting systems are in place in the vicinity of the machine.

Whenever measurements must be taken or checks performed with the machine running, it is necessary to:

- • make sure that any remote control systems are disconnected. Keep in mind, however, that the PLC on board the machine controls their functions and can activate and deactivate the components, creating dangerous situations (such as for example powering fans and their mechanical drive systems);
- make sure that no one is inside the unit;
- make sure that no objects or tools are left inside the unit;
- make sure that all the inspection doors of the unit are closed;
- for external units, do not work on the machine in adverse weather conditions such as rain, snow, fog, etc.

Furthermore, the following precautions must always be taken:

- the cooling circuit contains pressurized refrigerant gas. All operations must be carried out by qualified personnel with the authorisations or certifications required by the laws in force;
- never disperse the fluids contained in the refrigeration circuit to the environment;
- never keep the cooling circuit open, as the oil absorbs humidity and deteriorates;
- during venting operations, protect against possible fluid leaks at dangerous temperatures and / or pressures;
- when replacing electronic components, always use tools suitable for the task (extractors, anti-static bracelet, etc.);
- if replacing a motor, compressor, evaporator, condensation batteries or any other heavy component, make sure that the lifting mechanism is suitable for the weight to be lifted;

- before generating a vacuum in the cooling circuit, make sure to disconnect from the power supply all the phases of the electric motor of the compressors by removing or disconnecting the electrical protections (fuses and/or automatic switch) upstream of the cooling circuit. After charging with refrigerant, put the protections back in place with the power turned off before start-up;
- do not access the fan compartment without first isolating the machine using the main switch on the panel and displaying a “Maintenance - do not switch on” sign;
- contact MEHITS whenever modifications must be made to the cooling circuit, hydraulic or electrical diagrams of the unit, or its control logic;
- contact MEHITS whenever particularly complicated disassembly or re-assembly operations need to be performed;
- only use original spare parts purchased directly from MEHITS or from official dealers;
- contact MEHITS if you wish to move the unit over a year from installation or when dismantling becomes necessary;
- make sure that all tools, electrical cables or loose objects have been removed and that the machine has been connected perfectly before closing and starting the unit again;
- it is not permitted to walk on or place objects on the units. Any maintenance on the roof must be carried out using suitable equipment to guarantee safety (for example bridging access platforms);
- some maintenance operations in the unit pose the risk of trapping. Appropriate precautions must be taken.

Scheduled maintenance

Carry out all the scheduled maintenance activities at the indicated intervals.

INFORMATION:
Failure to carry out regular maintenance will make the warranty null and void and relieve the manufacturer of all safety related responsibilities.

Machine booklet

Provide a machine booklet for keeping a record of the maintenance work carried out on the unit.
In this way, it will be easier to properly plan maintenance work and any fault finding. Put these details in the booklet:

- The date;
- The type of operation performed;
- The description of the operation;
- The measurements carried out, etc.

10.2 Table of general maintenance jobs

For periodic maintenance of the elements of the refrigeration circuit, as well as for checking its correct operation, refer to the manual of the condensing unit connected to the unit.

OPERATIONS		FREQUENCY				
	Every day	15 days	1 month	3 months	6 months	12 months
Check any alarms.	☒					
Check that the setpoint air flow rate and relative stability have been reached.		☒				
Check the values read by temperature and humidity probes.		☒				
Remove and wash the filters, including the filter of the electrical panel fan.		☒				
Check the absolute and pocket filters for clogging and schedule replacement where necessary.		☒				
Check that the pressure transducer connection tubes are intact.		☒				
Check that the germicidal lamps are working properly.			☒			
Inspect R32 sensor				☒		
General cleaning of air-handling units, thermoventilator units and air extractors.					☒	
Replace the filters (when deteriorated).					☒	
Check correct operation of the humidifier, where fitted.					☒	
Check and fine-tune the damper servos.					☒	
Checking the earth connection.					☒	
Tighten the electrical connections and replace any worn and damaged cables.					☒	
Check wear of electrical panel elements including ventilation fan.					☒	
Check the unit power supply voltages.					☒	
Check fan power supply voltage and absorption.					☒	
Correct operation of the refrigeration circuit in accordance with the specifications of the external condensing unit (refer to condensing unit manual).					☒	
Cleaning the finned surfaces of the heat exchange barriers with compressed air and a mechanical brush.						☒
Clean the external condensing unit coil (see condensing unit manual).						☒
Clean the heat exchange surfaces.						☒
Check the tension of the rotary recovery unit belt and tighten it if necessary.						☒

Checking the anti-vibration supports.						☒
Check tightness of fan screws and bolts.						☒
Check that the fan turns without obstructions in the absence of voltage.						☒
Painting the inside and outside of the air-handling unit						☒
Check condition of the unit gaskets.						☒
Calibrate R32 sensor						☒
R32 sensor functional test						☒

The frequency of the operations described in the table above should be considered indicative. The table may vary depending on the specific use of the machine and the system in which the same is required to operate.

10.3 Structure check

Check the condition of the structure of the unit.
Treat with paints designed to eliminate or reduce oxidation those points of the unit where the problem can occur.
Check the fastening of the external panelling of the unit. Loose fasteners may cause abnormal noise and vibration.

OBLIGATION:
At each refill of refrigerant or intervention on the refrigerant circuit, check the oil quantity and the insulation of the compressor motor.

10.4 Checking of the water flow and cleaning of the exchangers

Check that the flow rate to the exchangers meets the design values. The variation of the flow rate in the exchangers can be caused not only by the presence of impurities in the filters, but also by faulty pumps, incorrect operations on the same, and presence of lime scale inside the exchangers. In this case, a chemical wash with suitable products must be carried out on the system.

10.5 Check that the coils are clean

The accumulation of dirt on the exchange coils causes the malfunction of the machine. This can lead to a reduction in the flow rate of air going through the heat exchanger, with an increase in fan consumption, a decrease in the cooling capacity of the machine, and even a stop.

OBLIGATION:
Avoid using pressure washers to clean the coils, as high pressures can cause permanent deformation of the fins.
Do not use chemical detergents or aggressive substances, as they can damage the heat exchanger.

DANGER:
The aluminium fins are thin and sharp. Make sure to always wear appropriate PPE to avoid cuts and abrasions. Protect the eyes and face against the spraying of water and dirt during the cleaning process.

INFORMATION:
In case of machines installed in aggressive atmospheres with high levels of dirt, the cleaning of the coils must be included in the routine maintenance activities, which must also be carried out more frequently.

The cleaning procedures below are recommended and should be carried out as part of routine maintenance (both for “tube&fin” coils and “microchannel” coils).

- **Remove all traces of dirt on the surface**. All deposits must be removed using a vacuum cleaner (a brush or other soft tool without metal bristles may also be used). If using compressed air, make sure this blows in the opposite direction to the normal air flow of the machine. Be careful not to scratch the coil with the nozzle of the compressed air gun.

10.6 Air filter maintenance/replacement

In the interest of ensuring the high performance and energy efficiency of the air handling unit, there must be a differential pressure switch for each filtering section of the control system of the AIRME units that can trigger an alarm when the drop in pressure at the filter exceeds the maximum permitted value. This alarm appears on the user interface terminal.

EPM1 50% - ISO 16890 (F7 - EN 779:2012) rigid bag filters (standard), activated carbon rigid bag filters or EPM1 85% - ISO 16890 (F9 - EN 779:2012) rigid bag filters (both available as optional accessories)

Pocket filters cannot be refurbished. Once dirty, they must always be replaced.
1. open the access panel;
2. take the filters out with care to avoid spreading dirt in the area below;
3. insert the new filters, fitting them in the same direction as those that were just removed;
4. close the panel;
5. send the old filters to a specialised collection or recycling centre (comply with the regulations in force).

ISO COARSE 55% - ISO 16890 (G4 - EN 779:2012) synthetic pleated air filters

It is essential that the air handling coil is able to offer maximum heat transfer. The unit must therefore always be operated with the air filters installed and the filters must be kept in proper condition.
Cleaning and replacing the filters when necessary is essential not only for practical reasons but are also very important from the point of view of health and hygiene.
Clogged filters can reduce the air flow rate and, therefore, cause malfunctions and blockages as well as breaking of the unit and downtime.
The frequency at which to check the filters depends on the quality of the supply of air from outside, the hours of operation of the unit, the level of dust and the number of people in the rooms.
In general, the optimal frequency can range from once every 15 days to once every 2 months. It is advisable to start with frequent checks, and then adjust the frequency based on the level of fouling detected.
Follow the procedure below:

1. open the access panel;
2. take the filters out with care to avoid spreading dirt in the area below;
3. wash the filter mat in lukewarm water with a common detergent;
4. rinse thoroughly in running water avoiding dispersal in the environment;
5. dry the filter;
6. put it back in its place;
7. reassemble the closing panels.

Old filters, wastewater and residues must be disposed of according to the regulations in force.

10.7 Steam humidifier check

Regular checks.

• After one hour of operation

In the case of both disposable cylinders and openable cylinders, check for any significant water leaks.

• Every 15 days and after no more than the first 300 operating hours

In the case of both disposable cylinders and openable cylinders, check operation and for any significant water leaks, and assess the general condition of the container. Check that arcs or sparks are not generated between the electrodes during operation.

• Quarterly and after no more than 1000 operating hours

In the case of disposable cylinders, check operation and for any significant water leaks, and replace the cylinder if necessary. In the case of cylinders that can be opened, check for any significantly blackened areas on the container. If so, check the electrodes for fouling and replace them as necessary, together with the sealing O-rings and the cover gasket.

• Annually and after no more than 2500 operating hours

Replace any disposable cylinders. Check the operation of cylinders that can be opened, if there are significant air leaks, the general condition of the container, any noticeable blackened areas of the container. Replace the electrodes, together with the sealing O-rings and the cover gasket.

• After five years and after no more than 10,000 operating hours

In the case of both disposable cylinders and openable cylinders, replace the entire cylinder.

Refer to the manual of the steam humidifier supplied with the unit for further information.

10.8 Electric heater maintenance

Check:

- The level of cleanliness.
- Correct fastening.
- For any signs of corrosion.

10.9 Extraordinary maintenance

If repairs are needed, contact a Service Centre authorized by the manufacturer.

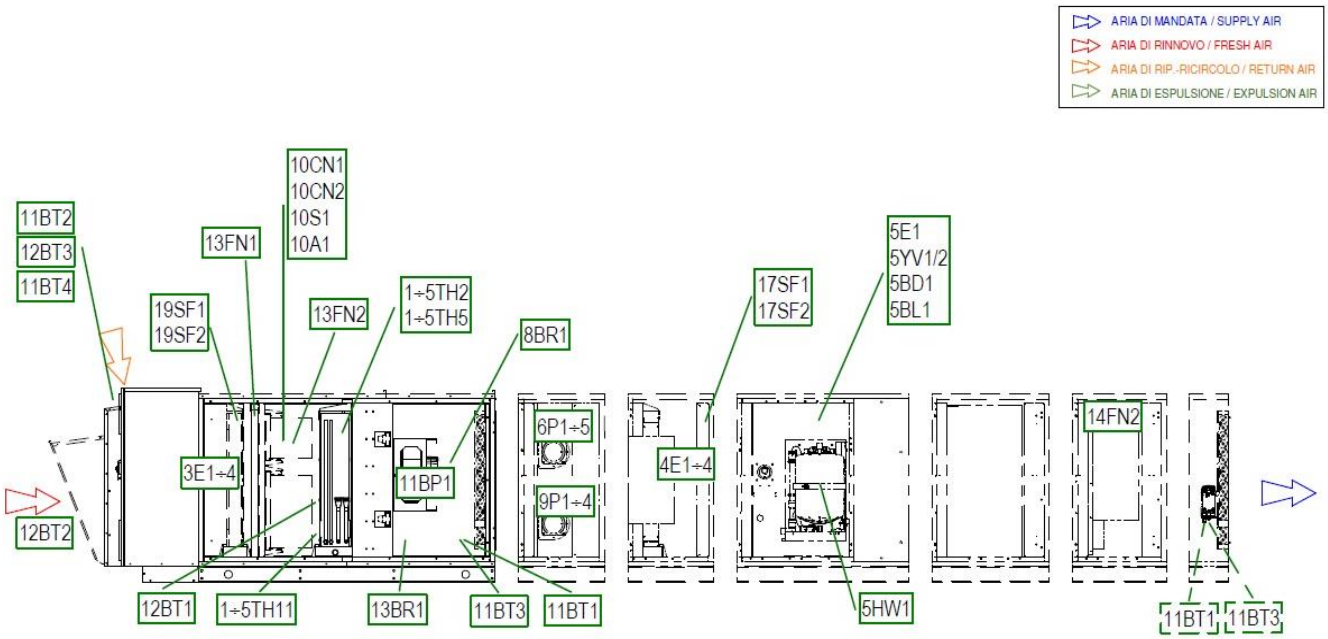
INFORMATION:
Failure to comply with the above will make the warranty null and void and relieve the manufacturer of all safety related responsibilities.

OBLIGATION:
When replacing components, only use original spare parts (see the list of “recommended spare parts”).

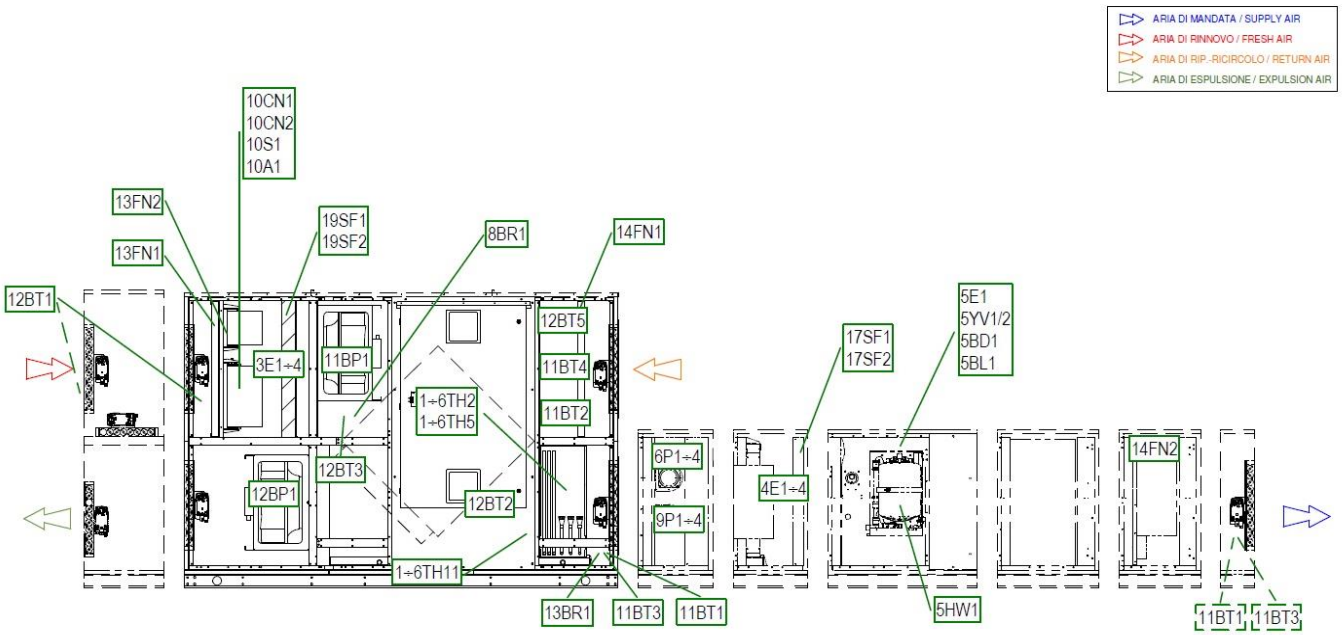
Checking the readings of the probes/positioning of the probes

REFERENCE	DESCRIPTION
1-6TH2	LIQUID TEMPERATURE PROBE (1÷6)
1-6TH5	TWO-PHASE TEMPERATURE PROBE (1÷6)
1-6TH11	COIL INPUT TEMPERATURE PROBE (1÷6)
3E1-3	PRE-HEATING ELECTRIC HEATERS (1÷3)
4E1-3	POST-HEATING ELECTRIC HEATERS (1÷3)
5BD1	HUMIDIFIER CONDUCTIVITY SENSOR
5BL1	HUMIDIFIER LEVEL SENSOR
5E1	"KUE" HUMIDIFIER ELECTRODES
5HW1	"UEX" COMPLETE HUMIDIFIER
5YV1	HUMIDIFIER LOADING VALVE
5YV2	HUMIDIFIER UNLOADING VALVE
6P1÷4	UV SANITISING LAMP
8BR1	SMOKE DETECTOR
9P1÷4	UVC LAMP
10A1	ELECTRONIC FILTER ALARM RELAY
10S1	ELECTRONIC FILTER DOOR SWITCH
11BP1	DELIVERY DIFFERENTIAL PRESSURE TRANSDUCER
11BT1	DELIVERY HUMIDITY PROBE
11BT2	RETURN HUMIDITY PROBE
11BT3	DELIVERY AIR TEMPERATURE PROBE
11BT4	RETURN AIR TEMPERATURE PROBE
12BP1	RETURN DIFFERENTIAL PRESSURE TRANSDUCER
12BT1	EXTERNAL AIR PROBE
12BT2	RECOVERY UNIT OUTLET TEMPERATURE PROBE
12BT3	ANTI-FREEZE TEMPERATURE PROBE
12BT5	CO2 PROBE
13BR1	GAS SENSOR
13FN1	DELIVERY FILTERS DIFFERENTIAL PRESSURE SWITCH 1
13FN2	DELIVERY FILTERS DIFFERENTIAL PRESSURE SWITCH 2
14BR1	SMOKE DETECTOR
14FN1	RETURN FILTERS DIFFERENTIAL PRESSURE SWITCH 1
14FN2	ABSOLUTE FILTERS DIFFERENTIAL PRESSURE SWITCH
17SF1÷2	POST-HEATING HEATER THERMOSTATS
19SF1÷2	PRE-HEATING HEATER THERMOSTATS

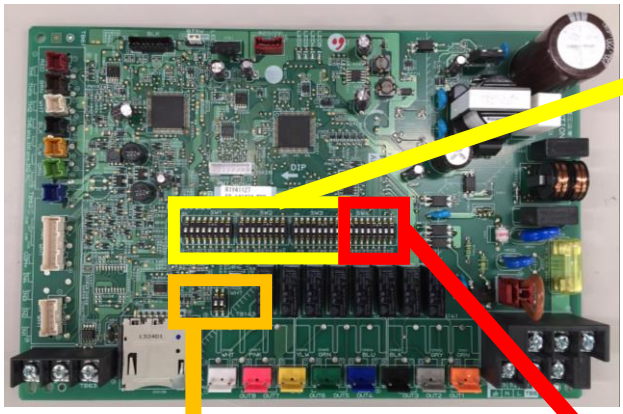
AR/MF function probes positioning

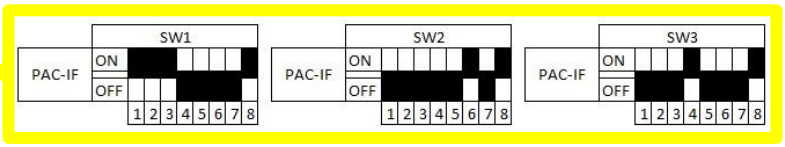


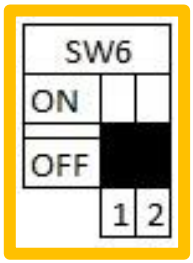
HR-P function probes positioning

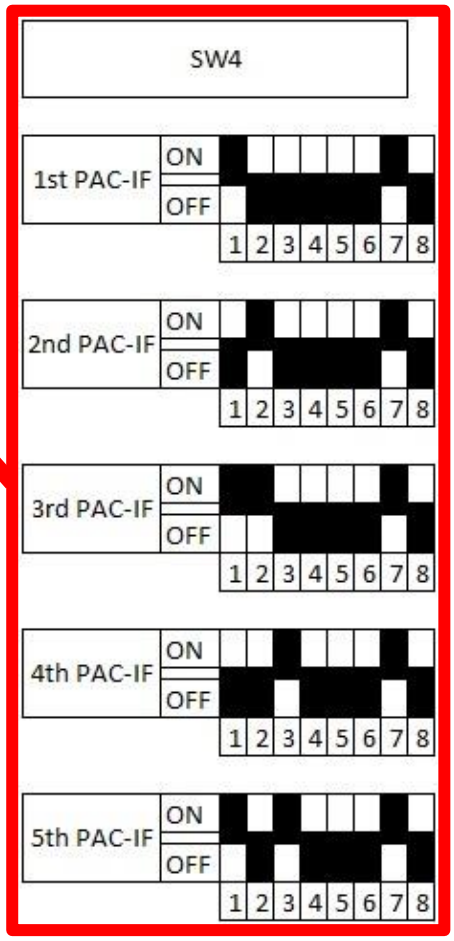


Replacement of the PAC-IF interface cards
If the board is faulty and needs to be replaced, make all the electrical connections as on the original board.
Make sure to also set the DIP SWITCHES on the new PAC-IF interface card as illustrated below.
The DIP SWITCHES of the SW1, SW2, SW3, SW6 must be set in the same way for all the PAC-IF interface cards in the switchboard of the s-AIRME-G07 unit.



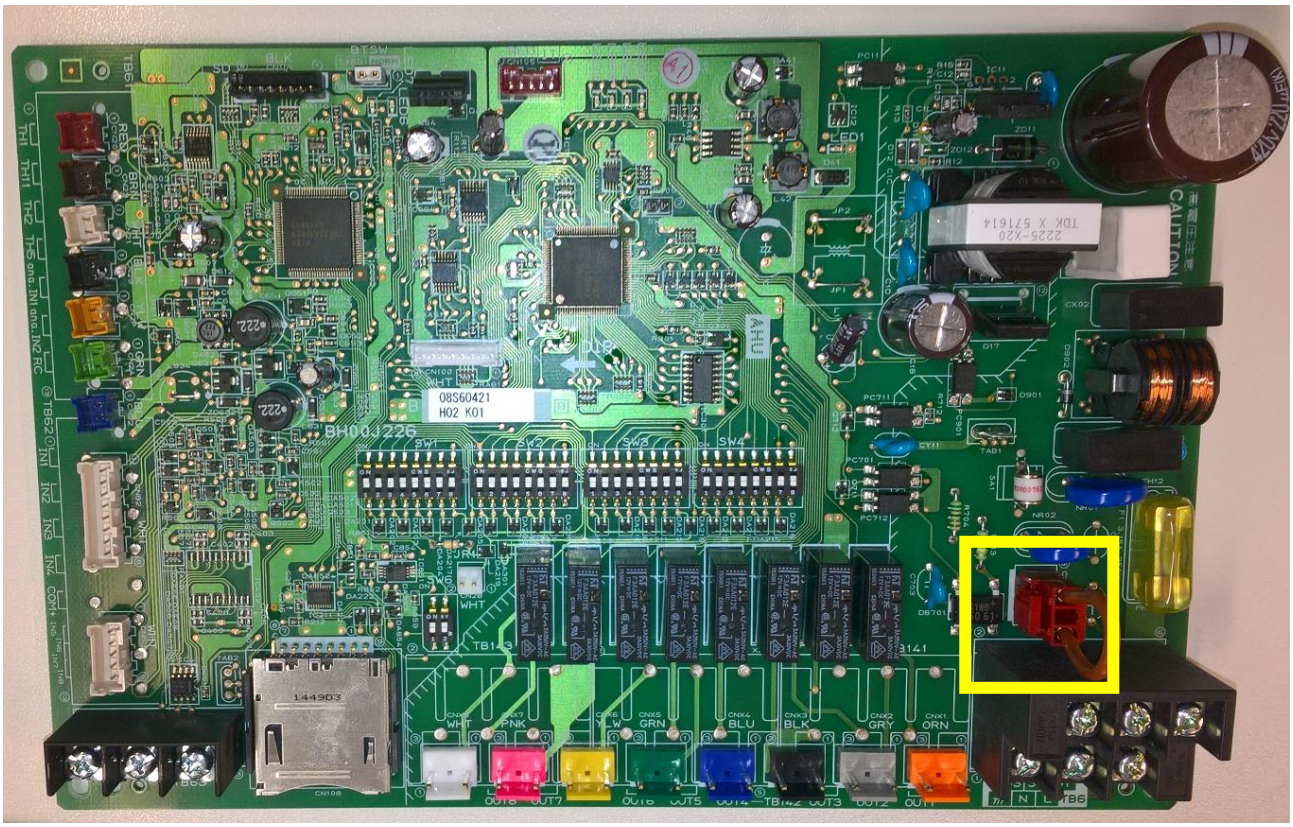






WARNING:
When the s-AIRME-G02/G07 unit is combined with a single Mr. Slim unit, dip-switch 8 of SW1 must be in the OFF position.

Irrespective of the type of control used, remove the "bridge" shown in the figure:



11 DISPOSAL OF THE MACHINE

When dismantling the machine, contact a service centre, distribution or branch authorised by the Manufacturer.

OBLIGATION:
The machine contains fluorinated greenhouse gases regulated by the Kyoto protocol. In accordance with the law, these must not be dispersed in the environment but collected and delivered to the retailer or collection centre.

When components are replaced, or when the entire machine is removed from the installation at the end of its useful life, the following requirements must be observed to minimise impact on the environment:

- The refrigerant gas must all be recovered by specialist personnel with the necessary authorisations. The refrigerant gas must be handed over to appropriate collection points;
- The lubrication oil in the compressors and cooling circuit must be recovered and handed over to appropriate collection points;
- The structure, the electrical and electronic equipment and the components must be sorted according to category and material and delivered to the collection centres;
- If the water circuit contains mixtures with antifreeze, these must be collected and delivered to the collection centres;
- Observe the domestic laws in force.

OBLIGATION:
The machine contains electrical and electronic parts that may contain substances that are harmful for the environment and human health, and which therefore cannot be disposed of with normal municipal waste.
Electrical and electronic equipment may not be disposed of with mixed municipal waste.

The machine is identified with the following symbol:

to indicate that it must be disposed of by separating the various materials.

The customer has an important role in ensuring reutilisation, recycling and other forms of recovery of the machine.

The machine is classed as PROFESSIONAL by WEEE Directive 2012/19/EU. Upon dismantling, it must be treated as waste by the user, who may ask the reseller to collect it, or take it to authorised waste collection centres.

Italy only:
MEHITS is part of the RIDOMUS consortium for the disposal of WEEE waste at the end of its life. At the end of the useful life, the owner of products classed as waste may contact the distributor, so that they can be collected free of charge by the consortium of which MEHITS is part.

MITSUBISHI ELECTRIC HYDRONICS & IT COOLING SYSTEMS S.p.A.

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