





# INDEX

Dear Customer.....	4
General Warnings.....	5
Safety symbols used.....	6
Personal protective equipment .....	6
Disposal Method .....	7
Monosplit air conditioners features .....	8
Content of the packaging .....	9
<b>1 Installation .....</b>	<b>10</b>
1.1 General Warnings .....	10
1.2 Outdoor Unit Installation .....	13
1.2.1 Main Dimensions.....	13
1.2.2 Main Components.....	14
1.2.3 Drilling instructions for unit connections .....	15
1.2.4 Compatible Models.....	15
1.2.5 Overview of installation.....	17
1.2.6 Installation .....	17
1.2.7 Connection of Cooling pipe.....	23
1.2.8 Cooling circuit vacuum operations.....	27
1.2.9 Additional coolant charge.....	28
1.2.10 Checking electrical and gas leakage .....	29
1.2.11 Operating temperature.....	29
1.2.12 Performing the test .....	30
<b>2 Instructions for Maintenance.....</b>	<b>31</b>
2.1 General Warnings .....	31
<b>3 Technical Data.....</b>	<b>32</b>
3.1 Multi Technical Data .....	32
3.1.1 Seasonal energy efficiency data.....	34



## DEAR CUSTOMER

*Congratulations for having chosen a top-quality Immergas product, able to assure well-being and safety for a long period of time. As an Immergas Customer, you can also count on a qualified Authorised Technical After-Sales Centre, prepared and updated to guarantee constant efficiency of your product. Read the following pages carefully: you will be able to draw useful tips on the proper use of the device, compliance with which will confirm your satisfaction with the Immergas product.*

*For assistance and routine maintenance, contact Authorised Technical Service Centres: they have original spare parts and are specifically trained directly by the manufacturer.*

*The heating systems must be subjected to periodic checks of energy efficiency in compliance with the national, regional or local provisions in force. To fulfill the obligations established by law, we invite you to contact the Immergas Authorized Assistance Centers.*

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The company **IMMERGAS S.p.A.**, with registered office in via Cisa Ligure 95 42041 Brescello (RE), declares that the design, manufacturing and after-sales assistance processes comply with the requirements of standard **UNI EN ISO 9001:2015**.

For further details on the product CE marking, request a copy of the Declaration of Conformity from the manufacturer, specifying the appliance model and the language of the country.

The manufacturer declines all liability due to printing or transcription errors, reserving the right to make any modifications to its technical and commercial documents without forewarning.





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## GENERAL WARNINGS

This book contains important information for the:

**Installer;**

**Maintenance technician.**

- The user must carefully read the instructions provided.
- The appliance must be installed by qualified and certified personnel.
- The instruction booklet is an integral and essential part of the product and must be given to the new user in the case of transfer or succession of ownership.
- It must be stored with care and consulted carefully, as all of the warnings provide important safety indications for installation, use and maintenance stages.
- In compliance with legislation in force, the systems must be designed by qualified professionals, within the dimensional limits established by the Law. Installation and maintenance must be performed in compliance with the regulations in force, according to the manufacturer's instructions and by professionally qualified staff, intended as staff with specific technical skills in the system sector, as envisioned by the Law.
- Improper installation or assembly of the Immergas appliance and/or components, accessories, kits and devices can cause unexpected problems for people, animals and objects. Read the instructions provided with the product carefully to ensure proper installation.
- This instructions manual provides technical information for installing Immergas products. As for the other issues related to the installation of products (e.g. safety at the workplace, environmental protection, accident prevention), it is necessary to comply with the provisions of the standards in force and the principles of good practice.
- All Immergas products are protected with suitable transport packaging.
- The material must be stored in a dry place protected from the weather.
- Damaged products must not be installed.
- Maintenance must be carried out by skilled technical staff. For example, the Authorised Service Centre that represents a guarantee of qualifications and professionalism.
- The appliance must only be destined for the use for which it has been expressly declared. Any other use will be considered improper and therefore potentially dangerous.
- If errors occur during installation, operation and maintenance, due to non-compliance with technical laws in force, standards or instructions contained in this booklet (or however supplied by the manufacturer), the manufacturer is excluded from any contractual and extra-contractual liability for any damage and the device warranty is invalidated.
- In the event of malfunctions, faults or incorrect operation, turn the appliance off and contact an authorised company (e.g. the Authorised Technical Assistance Centre, which has specifically trained staff and original spare parts). Do not attempt to modify or repair the appliance alone.

## SAFETY SYMBOLS USED



### GENERIC HAZARD

Strictly follow all of the indications next to the pictogram. Failure to follow the indications can generate hazard situations resulting in possible serious harm to the health of the operator and user in general, and/or serious material damage.



### ELECTRICAL HAZARD

Strictly follow all of the indications next to the pictogram. The symbol indicates the appliance's electrical components or, in this manual, identifies actions that can cause an electrical hazard.



### HAZARD MOVING PARTS

The symbol indicates the appliance's moving components that can cause hazards.



### LOW FLAMMABILITY MATERIAL

The symbol indicates that the appliance contains low flammability material.



### INSTALLER RECOMMENDATIONS

Read the instruction booklet carefully before installing the product.



### WARNINGS

Strictly follow all of the indications next to the pictogram. Failure to follow the indications can generate hazard situations resulting in possible minor injuries to the health of the operator and user in general, and/or minor material damage.



### ATTENTION

Read and understand the appliance's instructions before performing any operation, carefully following the indications provided. Failure to follow the indications can generate appliance malfunctions.



### INFORMATION

Indicates useful tips or additional information.



### EARTH TERMINAL CONNECTION

The symbol identifies the appliance's earth terminal connection point.

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## PERSONAL PROTECTIVE EQUIPMENT



### SAFETY GLOVES



### SAFETY GOGGLES



### SAFETY FOOTWEAR



## DISPOSAL METHOD



### DISPOSAL WARNING

**The user must not dispose of the appliance at the end of its service life as municipal waste, but send it to appropriate collection centres.**

*This product complies with the European Union WEEE Directive and bears the relevant classification symbol.*

*This marking on the product means that waste electrical and electronic equipment must not be mixed with generic household waste.*

Do not dispose of this product as unsorted city waste. Incorrect management of waste has potential negative effects on the environment and on human health.

To dispose of the device, refer to waste electrical and electronic equipment collection centres or contact the dealer that you purchased it from.

Discharged batteries must be taken out of the remote controls and disposed of separately in compliance with local regulations.

Each customer plays an important role in recovering and recycling of obsolete appliances.

## MONOSPLIT AIR CONDITIONERS FEATURES

Direct expansion “split” inverter reversible single phase air to air heat pumps, consisting of an outdoor unit and an indoor unit. There is a separate code for the outdoor and indoor unit.

Main components:

- **Outdoor unit**, available in two versions and powers, which mainly includes rotary compressor, inverter electronics, throttle valve, 4-way valve for cycle inversion, finned exchange coil with outdoor air (with single fan), Interception cocks for the R32 circuit. The cooling circuit is already pre-loaded with coolant R32.
  - **UE MONO 9**;
  - **UE MONO 12**.
- These external units can be coupled respectively with an internal unit of equal power, among the following:
  - **UI CAS**, cassette indoor unit for recessed or false ceiling installation;
  - **UI DUCT**, ductable medium head indoor unit for recessed or false ceiling installation;
  - **UI CONS**, console indoor unit for vertical confined spaces.

Indoor units with direct expansion, containing the rest of the components of the cooling circuit for connection to the outdoor unit, as well as the relative management and communication electronics.

**UE MONO 9**  
**UE MONO 12**



0-01



## CONTENT OF THE PACKAGING

OUTDOOR UNIT		
Description		Qty
Supplied documentation	<ul style="list-style-type: none"><li>• Safety manual</li><li>• User manual</li><li>• Warranty Leaflet</li></ul>	1
Drain coupling	<ul style="list-style-type: none"><li>• Drain coupling</li><li>• Coupling gasket</li></ul>	1



# 1 INSTALLATION

## 1.1 GENERAL WARNINGS



Operators who install and service the appliance must wear the personal protective equipment required by applicable law.



The manufacturer cannot be held liable for damage resulting from unauthorised changes or improper connection of the electric and refrigerated lines.



The place of installation of the device and relative Immergas accessories must have suitable features (technical and structural), such as to allow for (always in safe, efficient and comfortable conditions):

- installation (according to the provisions of technical legislation and technical regulations);
- maintenance operations (including scheduled, periodic, routine and special maintenance);
- the removal (to the outside of the designated place for loading and transporting the devices and components) as well as the replacement of them with equivalent devices and/or components.

The unit must be installed according to the spaces described in this manual so as to guarantee that both sides are accessible and to allow for repairs and maintenance to be performed.



Installation must be carried out according to UNI and IEC regulation standards, current legislation and in compliance with local technical regulations and the required technical procedures. In particular, standards UNI EN378 and CEI 64-8 need to be complied with.



**This air conditioning unit contains fluorinated greenhouse gases.  
The appliance operates with R32 coolant gas. Do not release R32 into the atmosphere.  
Note that the gas is odourless.**



**R32 coolant gas belongs to the low flammability coolant category: class A2L according to standard ISO 817.  
Strictly follow the instruction handbook before installation and any type of operation on the chiller line.**



Before installing the appliance, ensure it has been delivered in perfect condition; if in doubt, contact the supplier immediately. Packing materials (staples, nails, plastic bags, polystyrene foam, etc.) constitute a hazard and must be kept out of the reach of children.



**In case of anomaly, fault, imperfect functioning of the device (e.g. burning smell, release of smoke or excessive noise), immediately switch off unit and disconnect the electrical power supply. Contact the Authorised Technical Service Centre.**



**Failure to comply with the above implies personal responsibility and invalidates the warranty.**



Check the environmental operating conditions of all parts relevant to installation, referring to the values shown in the technical data table in this booklet.



Make sure to take adequate measures so that the unit is not used to house small animals. Animals that come into contact with electric components could cause operating failures, smoke or fire.  
Inform the customer to keep the area around the unit clean.



Children of 8 years or older and people with reduced physical, sensorial or mental capacities can use this device as long as they are under supervision or have been instructed and informed regarding the safe use of this device and the possible risks connected to it.

Children must not play with the appliance.

The appliance must not be cleaned and serviced by children without the supervision of an adult.



- Turn the air conditioner off and cut off the power if it is not used for a long period of time.
- Switch off the device during storms.
- Make sure that the water condensate drain can flow out without obstruction from the unit to places where it will not bother or damage people, property or animals.
- Do not start the air conditioner with wet hands. This could cause electric shocks.
- Do not use the device for any other purpose than intended.
- Do not climb onto to place objects on the outdoor unit.
- Do not leave the air conditioner for long periods of time with doors or windows open, or if the humidity is very high.

- This device contains coolant gas that must be disposed of as special waste.
- The packaging material must be disposed of in compliance with local regulations.

**WARNINGS** for product installation:

- Installation must be carried out according to the installation instructions. Improper installation could cause coolant leaks, electric shocks or fire. This device must be installed in compliance with the national wiring regulations.
- For installation only use the included specified accessories, parts and pieces. The use of non-standard parts can cause a fault on the unit.
- Install the unit in a solid position that can support its weight. If the chosen position cannot support the weight of the unit, or installation is not carried out correctly, the unit can fall and cause serious injuries and damage.
- Handle the device with care.
- Do not install the unit where it can be exposed to combustible gas leaks. If gas accumulates around the unit, this can cause a fire.
- Do not turn on the unit until all work is complete.
- When moving or relocating the air conditioner, consult expert technicians for unit disconnection and reinstallation.
- The outdoor unit is designed for outdoor installation only.
- Do not install the unit or parts of it on stairs, landings or other elements constituting escape routes, thereby obstructing the free passage.
- Do not install near sources of heat.
- The unit must be positioned in such a way as to avoid coolant leaking in homes or otherwise endangering people, animals, objects and property. In the event of a leak, the coolant must not be able to flow into vents, doors, hatches, drains or other openings.
- Do not position in basement windows or similar environments.
- Avoid obstacles or barriers that cause recirculation of exhaust air.



**WARNINGS** for product use:

- Do not insert fingers or other objects into the air inlet or outlet. This could cause injury.
- Do not run the air conditioner in the vicinity of flammable gases. The emitted gas could collect around the unit and cause a fire. Do not use flammable sprays such as hair spray, spray varnish or paint near the unit.
- Do not run the air conditioner in a humid room, such as a bathroom or laundry room. Excessive exposure to water could cause the electrical components to short circuit.
- Do not expose oneself directly to the air flow for extended periods of time.
- If the air conditioner is installed in a room with burners or other C.H. devices, thoroughly ventilate the room to avoid any lack of oxygen.

**WARNINGS** for cleaning and maintenance:

- Switch off the device and disconnect the power supply before cleaning or before performing maintenance on it. Failure to observe this rule can cause electric shocks.
- Do not clean the air conditioner with excessive amounts of water.
- Do not clean the air conditioner with flammable detergents.

**NOTE ON FLUORINATED GASES:**

- Installation, maintenance of the cooling circuit and the uninstallation of this unit must be carried out by a certified technician.
- The coolant gas leak check must be carried out in accordance with the relevant legislation. This job must be carried out by certified personnel only.
- Remember that it is mandatory to report interventions to the FGAS database established by Presidential Decree 16 November 2018, No 146, as amended.
- Bear in mind that the coolant that escapes from the appliance in the event of a leak has a higher density than air and can accumulate at the bottom of the installation site. Coolant stagnation can create a fire or explosion hazard. In case of possible coolant stagnation, follow the safety measures of EN 378. For units installed outdoors in a place where the release of coolant may stagnate, follow the guidelines of EN 378.

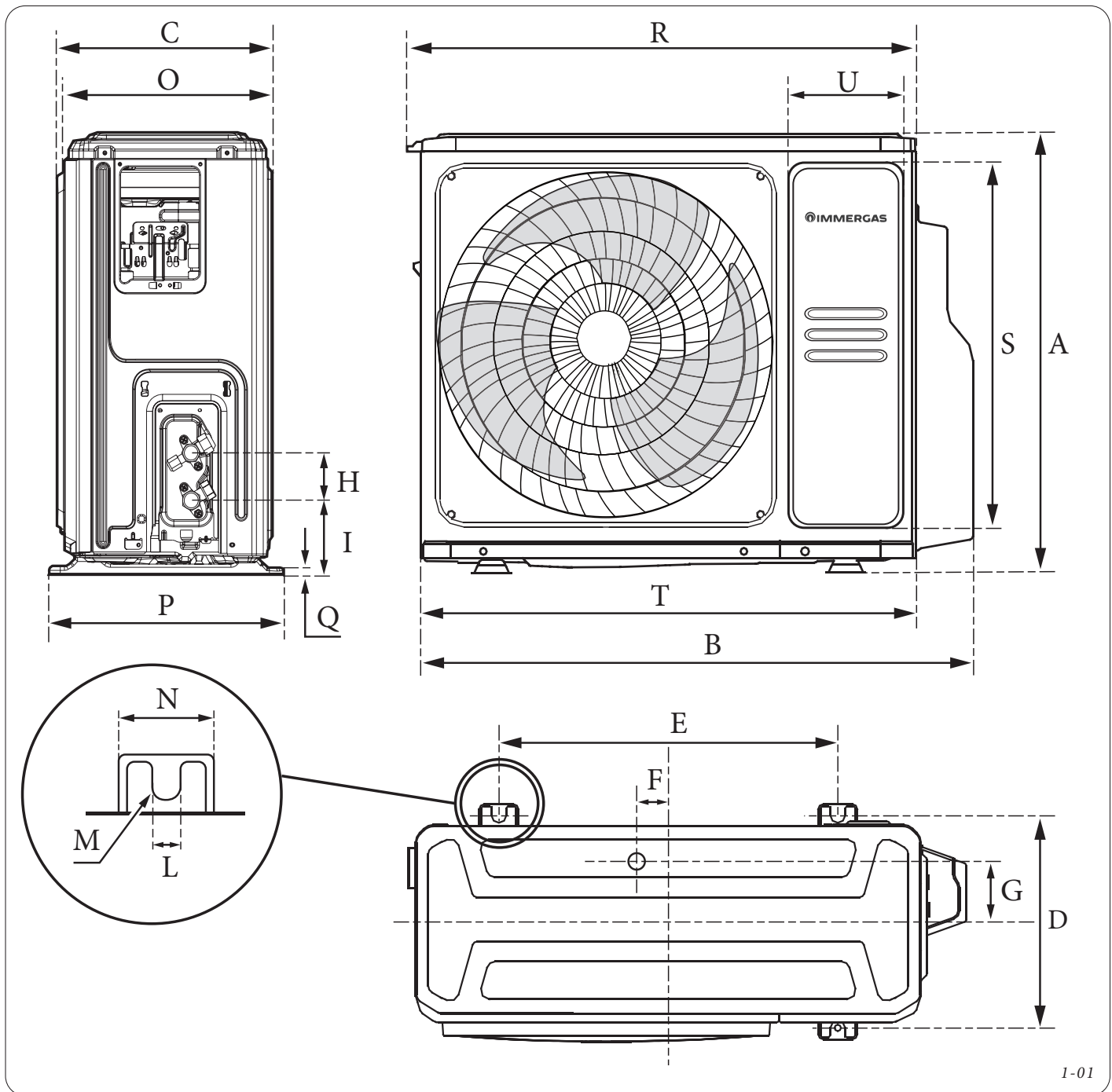
**WARNINGS** electrical:

- All cables must be compliant with local and national electrical regulations, and must be installed by authorised technicians.
- All electrical connections must be set up according to the electrical connection diagram located on the panels of the indoor and outdoor units and according to the wiring diagram provided in this manual.
- In case of issues with the power supply, suspend unit installation; explain the reasons and refuse to install the units until the issue is resolved.
- The rated power supply of the power line must be 220-240V (50Hz)  $\pm$  10%. A power supply outside of the stated tolerances may cause malfunctions, electrical shocks or fires. Observe the L-N polarity.
- On the electrical power supply line there must be an overvoltage protection device, a breaker or fuse, and an RCD.
- On the electrical power supply line there must be multi-pole circuit breaker with class III (3 mm) overvoltage category in compliance with the installation rules.
- The RCD switch must not have a differential current greater than 30 mA, and be at least type A (do not use RCD type AC).
- For electrical power supply it is not allowed to use adapters, multi-plugs and extensions.
- Make sure that the Unit is correctly earthed and that the earthing system is efficient and set up to standard.
- Each cable must be securely connected. Non-secure connections can cause the terminal to heat, thereby causing malfunctions and possible fires.
- Do not allow the cables to touch or rest on cooling pipes, on the compressor or on any mobile part of the unit.
- Before performing any electrical work or cleaning, be sure to cut off the power supply to the units.



## 1.2 OUTDOOR UNIT INSTALLATION

### 1.2.1 MAIN DIMENSIONS



1-01

Dimensions in mm

EU models	A	B	C	D	E	F	G	H	I	L	M	N	O	P	Q	R	S	T	U
MONO 9	555	835	303	286	452	18	76	60	93	10	R5	62	274	314	-	784	435	765	182
MONO 12	555	835	303	286	452	18	76	60	93	10	R5	62	274	314	-	784	435	765	182

INSTALLER

MAINTENANCE TECHNICIAN

TECHNICAL DATA



## 1.2.2 MAIN COMPONENTS

**NOTE:**

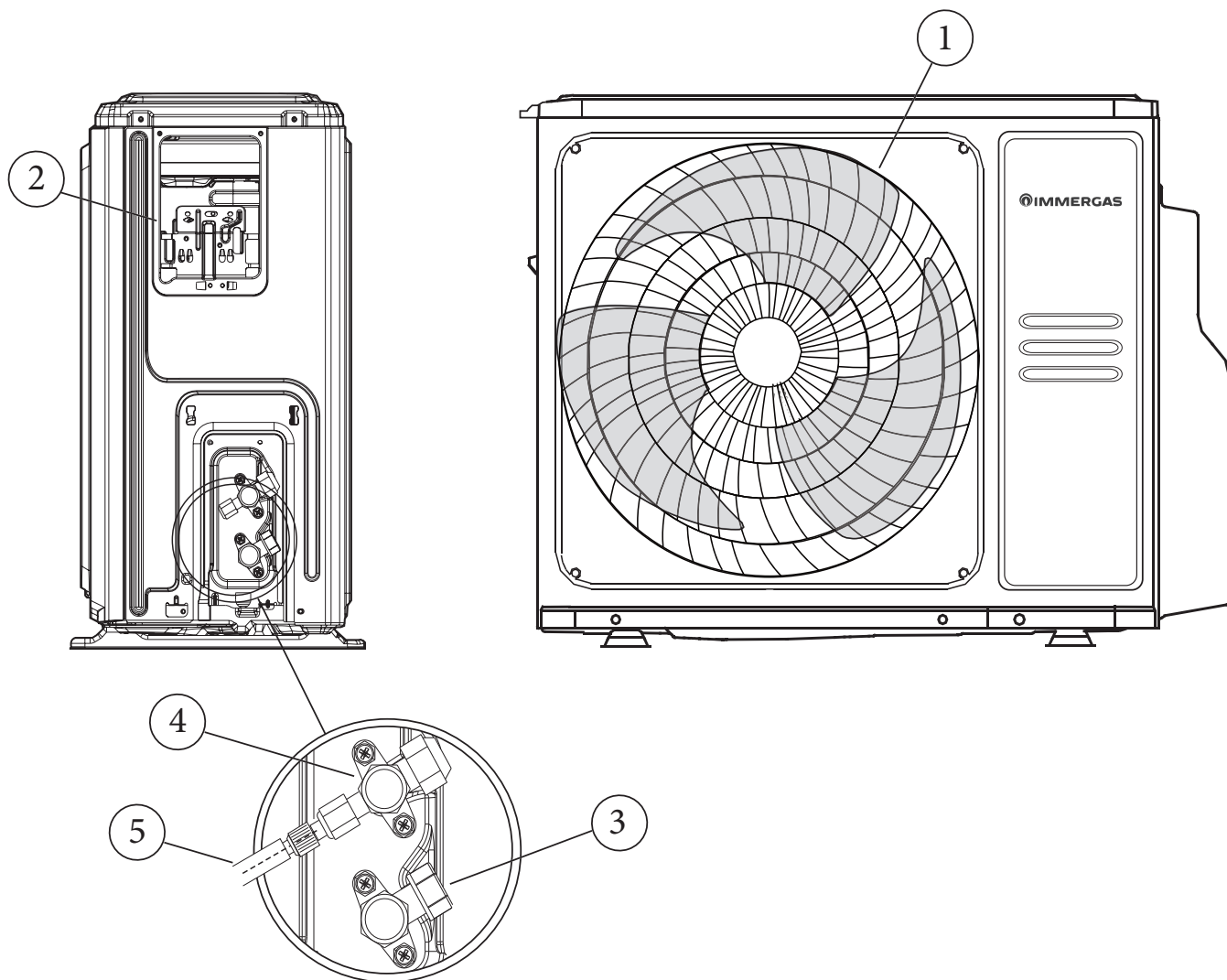
- The illustrations are provided by way of example, the actual products could be slightly different
- Installation must be carried out in compliance with local and national standards.



The air conditioner is made of two (or more) units connected together by pipes (duly insulated) and by a supply cord. The Indoor Unit needs to be installed on a wall of the room being air conditioned. The Outdoor Unit must be installed on the floor or wall, on specific brackets or supports (sold separately).

**KEY:**

1. Fan grid
2. Terminal board
3. Gas valve
4. Cooling liquid valve
5. Flexible Conditioning Hose (not provided)



### 1.2.3 DRILLING INSTRUCTIONS FOR UNIT CONNECTIONS

Drill a hole in the wall for the coolant pipes, the drainage pipe and for the signal cable that will connect the indoor unit to the outdoor unit.

1. Using a minimum 65mm size tool for the drill, make a hole in the wall, ensuring that it is angled slightly downwards, so that the outer end is about 5-7mm lower than the inner end.
2. Install a protective wall sealing plate (sold separately) on the newly drilled hole; this protects the edges of the hole and helps seal it at the end of installation.

The indoor units have different sizes, *refer to the manual of the relative indoor unit.*

### 1.2.4 COMPATIBLE MODELS

#### UI connections

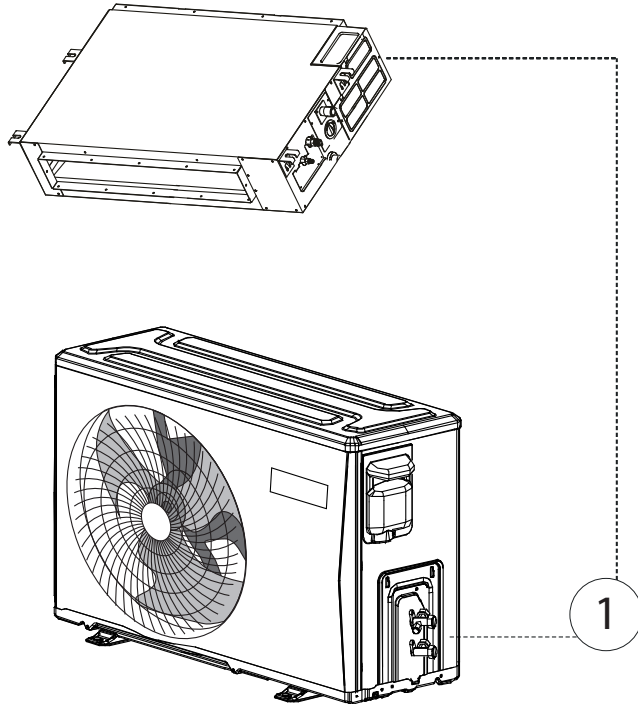
Below are the compatibility indications with the outdoor unit.  
Every outdoor MONO unit can be combined with one indoor unit.

Model	Condensate drain Ø (mm)	Flow pipe internal Ø (liquid)	Return pipe internal Ø (gas)
UI CAS 9	20	1/4" (6.35 mm)	3/8" (9.52 mm)
UI CONS 9	20	1/4" (6.35 mm)	3/8" (9.52 mm)
UI DUCT 9	20	1/4" (6.35 mm)	3/8" (9.52 mm)
UI CAS 12	20	1/4" (6.35 mm)	3/8" (9.52 mm)
UI CONS 12	20	1/4" (6.35 mm)	3/8" (9.52 mm)
UI DUCT 12	20	1/4" (6.35 mm)	3/8" (9.52 mm)

#### Duct - connection to the unit

##### KEY:

1. Connection pipes (not provided)



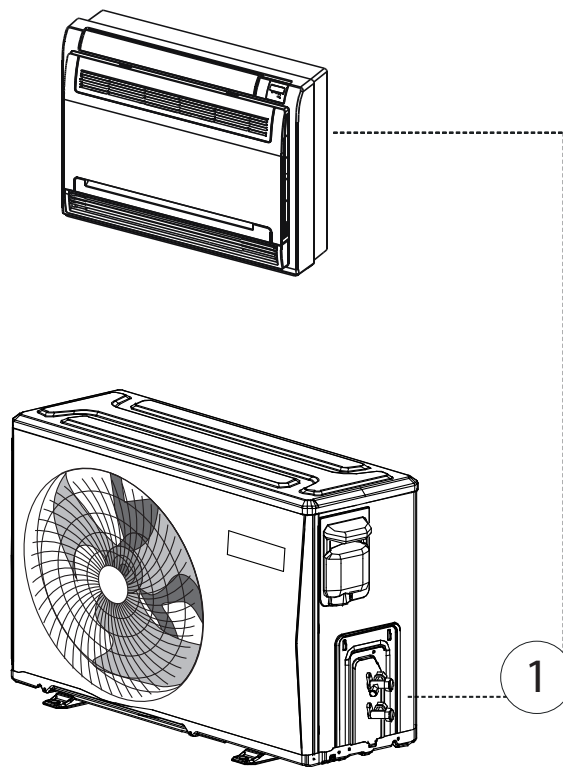
I-03



**Cons - connection to the unit**

**KEY:**

- 1. Connection pipes (not provided)

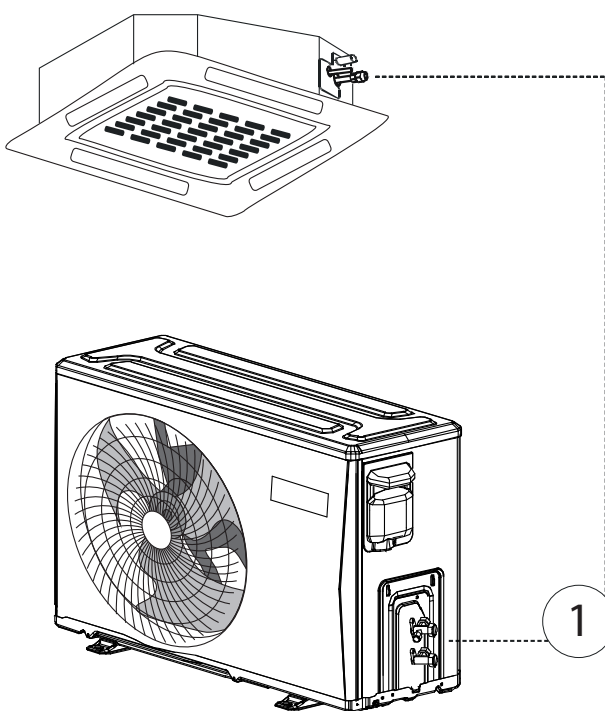


1-04

**Cas - connection to the unit**

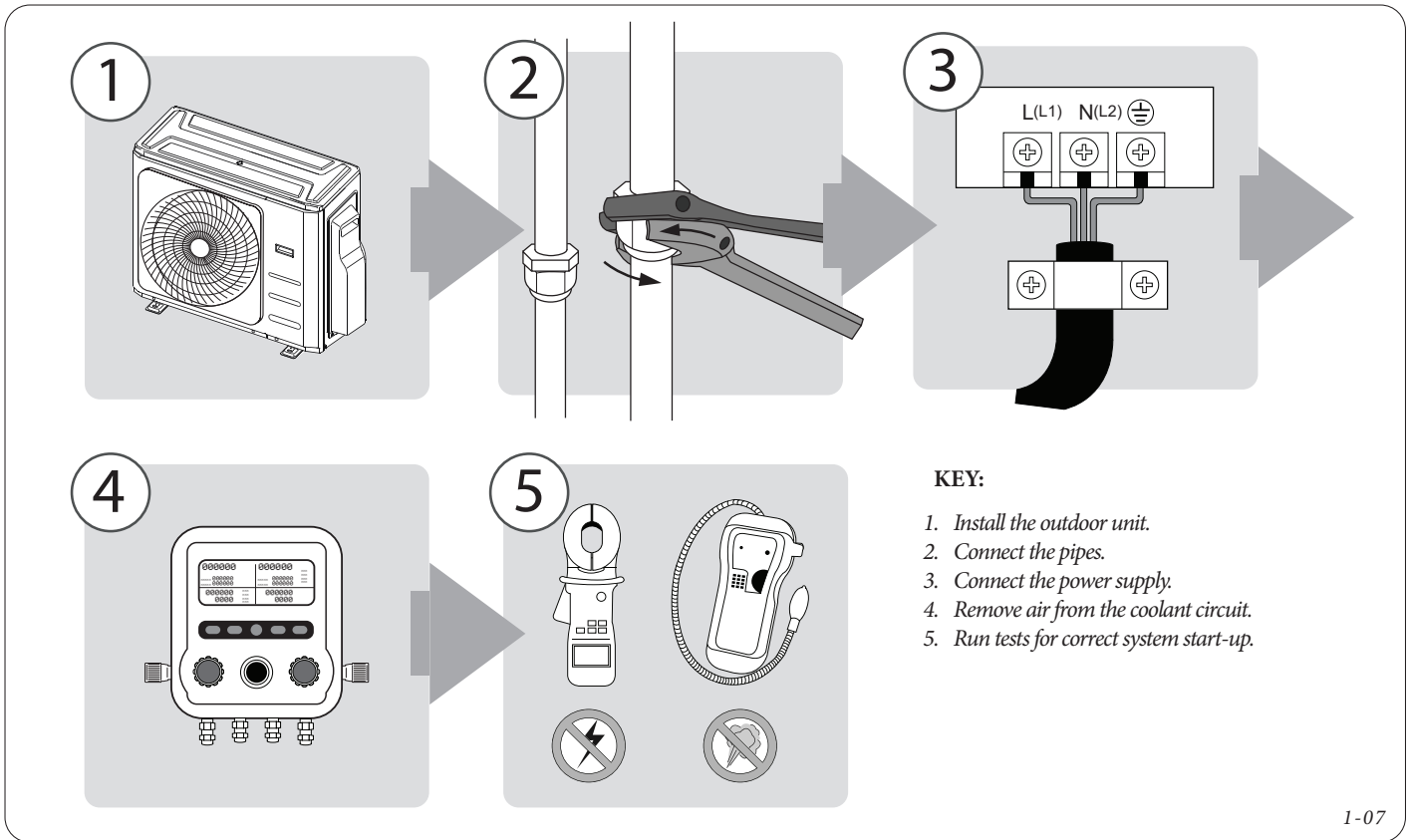
**KEY:**

- 1. Connection pipes (not provided)



1-05

## 1.2.5 OVERVIEW OF INSTALLATION



## 1.2.6 INSTALLATION

It is necessary for the outdoor unit to be handled and stored in a vertical position, for the purpose of ensuring adequate availability of the oil contained in the cooling circuit and avoid any damage to the compressor.

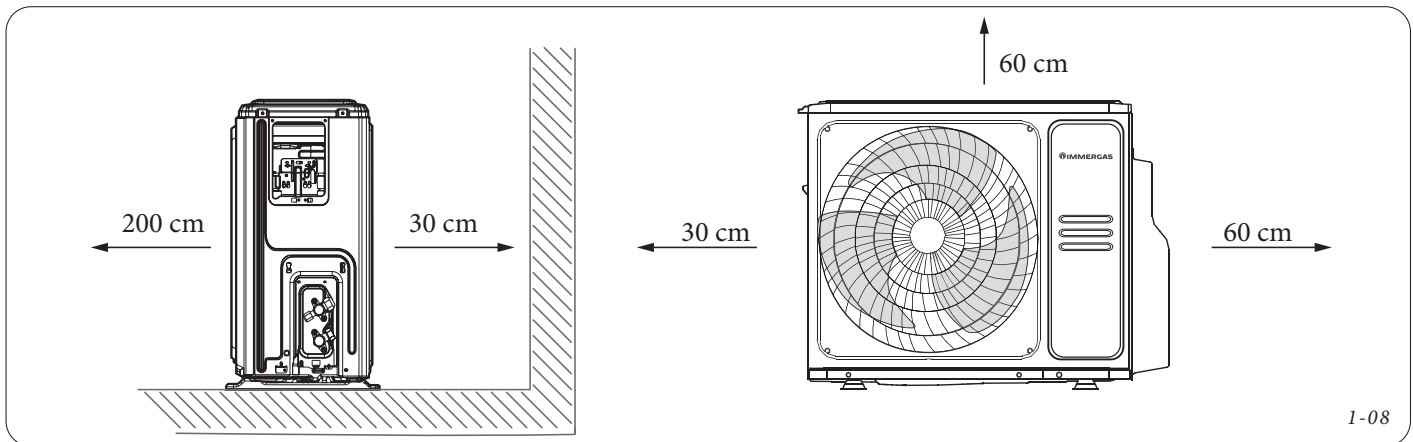
### PITCH 1: Choosing the place of installation

Before installing the outdoor unit, choose an appropriate place.

Below are the indications that will help you choose an appropriate place for unit installation:

#### A. Single Installation

- Observe all of the installation dimensions as in the figure;



- Good air and ventilation flow
- Noise from the unit must not bother other people.
- Make sure that the mount/wall/partition can bear the weight of the unit and does not vibrate.
- Protected against extended periods of direct sunlight or rain.

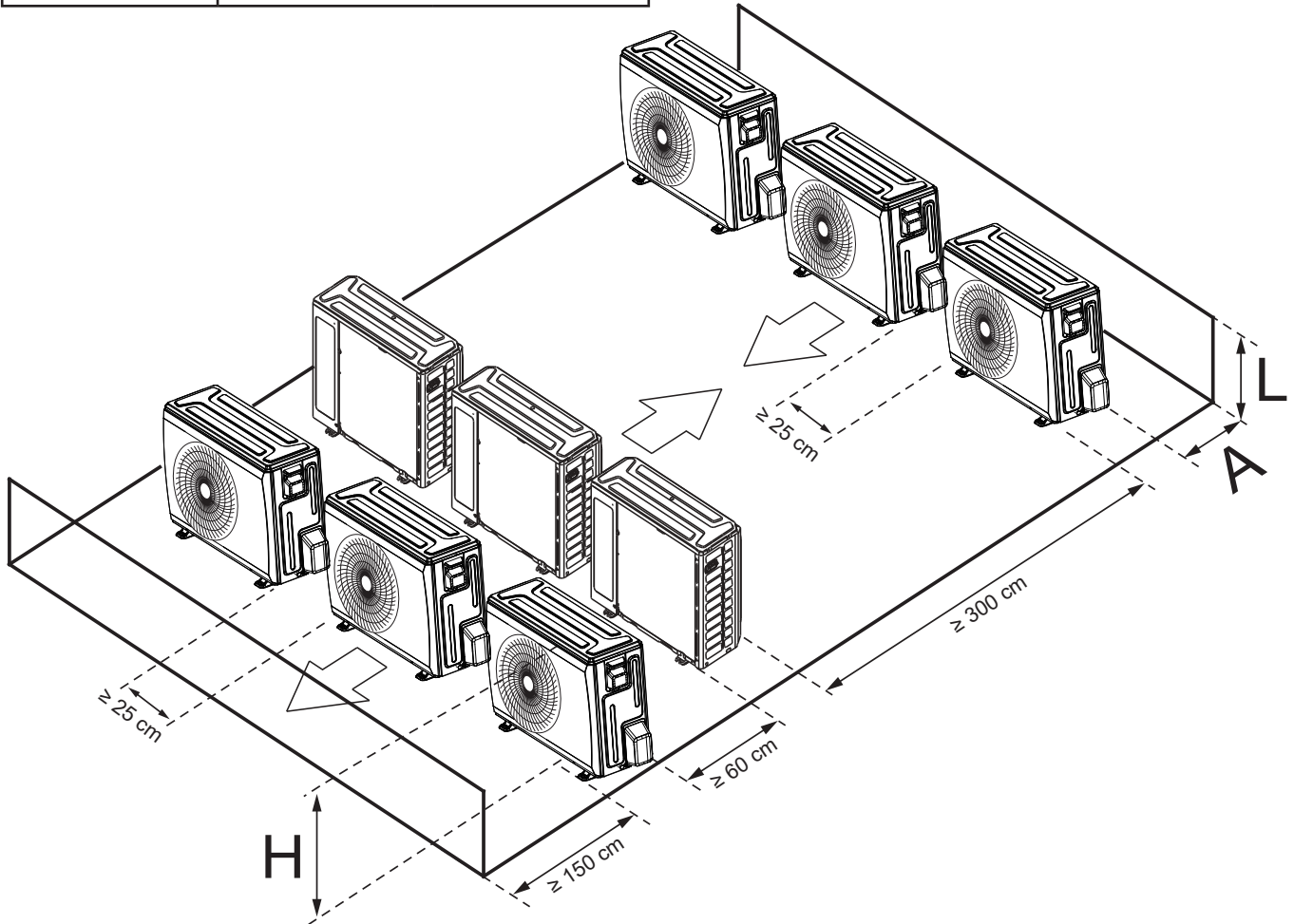


**B. Multiple Installation**

- Observe the minimum installation distances of multiple outdoor units, as in the image provided below.

The relations between H, A and L are the following.

	L	A
L ≤ H	L ≤ 1/2H	25 cm or more
	1/2H < L ≤ H	30 cm or more
L > H	It cannot be installed	



1-09



**DO NOT** install the unit in the following places:  
**DO NOT** install near an obstruction that could block air inlet and outlet  
**DO NOT** install on a public road, crowded areas or where the noise of the unit can bother other people.  
**DO NOT** install near animals or plants that can get harmed by the hot air exhaust coming from the unit.  
**DO NOT** install near any source of combustible gas  
**DO NOT** install in a place exposed to an excessive amount of dust and/or salty air.

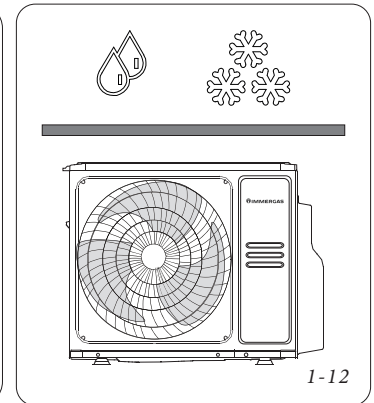
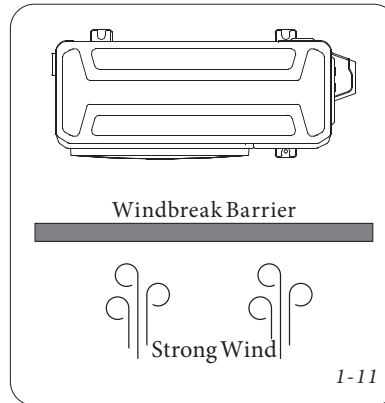
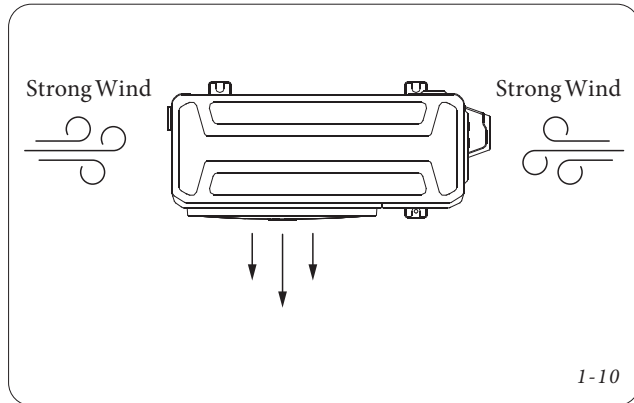
### Special considerations for extreme weather conditions

If the unit is exposed to strong wind:

- Install the unit so that the air outlet fan is at a 90° angle with respect to the wind direction (1-10).
- If necessary, set up a barrier in front of the unit to protect it from strong winds (1-11).

If the is often exposed to rain or snow:

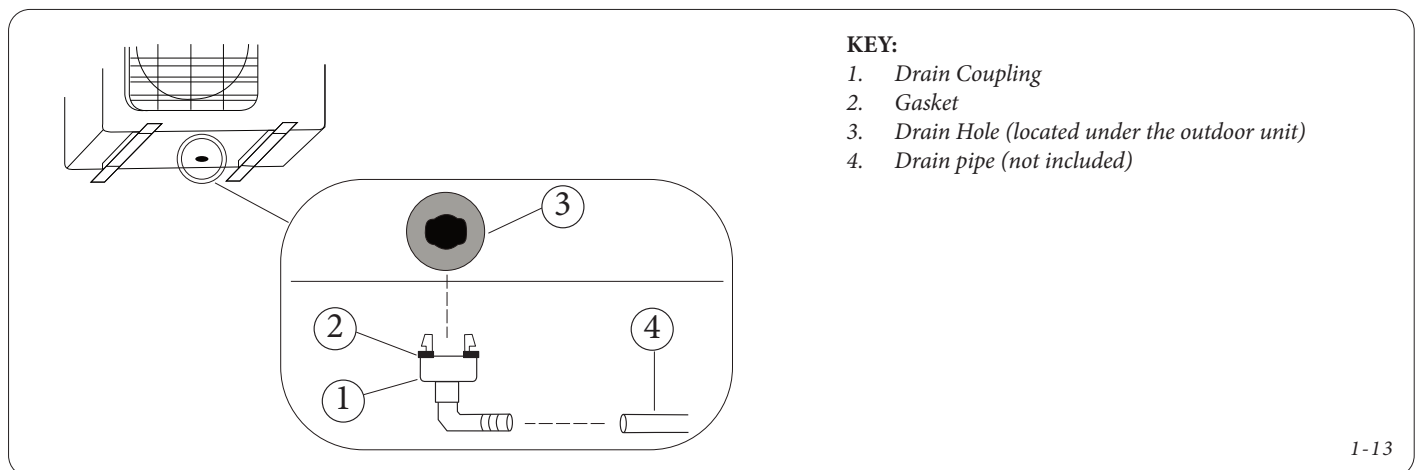
- set up a guard above the unit to protect it from the elements, taking care to not obstruct the flow of air around the unit (1-12).



### PITCH 2: Installation of condensate drain coupling

Before securing the outdoor unit to the floor, it is necessary to install the condensate drain coupling as follows:

- Install the rubber gasket in its place on the drain coupling.
- Insert the drain coupling in the hole on the bottom of the unit.
- Turn the drain coupling 90° towards the front part of the unit, until it clicks into place.
- Connect a pipe (not included) to the drain coupling so that the condensate flows into the relative duct.



### ATTENTION

For installation in particularly cold climates, make sure that the condensate drain pipe is as vertical as possible to guarantee quick drainage of the water. If the water flows out too slowly, it could freeze in the pipe and flood the unit.

### PITCH 3: Anchoring the unit to the floor

Based on the place of installation, set up the right anchoring system for the machine and the use of adequate vibration dampers (sold separately), to install under the supporting feet of the outdoor unit.

When anchoring to the ground, refer to the technical drawings in the “Main Dimensions” paragraph after having the correct position of the supporting feet.



**INFORMATION**

If the unit is standing on the floor, it is advisable to purchase the dedicated Immergas floor-mount kit with the relative instructions.

If the unit is wall-mounted, it is advisable to purchase the dedicated Immergas wall-mount brackets kit with the relative instructions.

**PITCH 4:** Signal cable and supply cord connection**Attention**

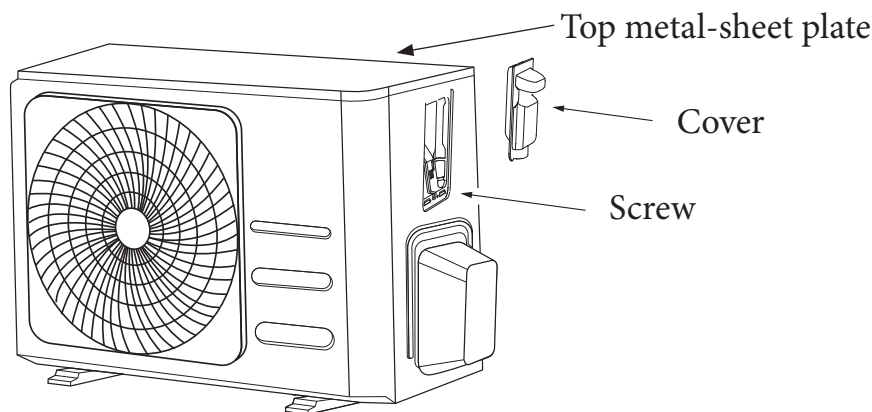
**Before doing any electrical work, read the warnings at the beginning of this manual. Before performing any electrical work or cleaning, be sure to cut off the power supply to the units.**

**When stripping the wires, be sure to clearly identify the “L” phase cable.**

The terminal block for the outdoor unit supply cord and connection to the indoor unit, is protected by a cover on the outdoor unit side. The wiring connections diagram is inside the side cover and in the wiring diagram herein.

All electrical connections must be strictly set up according to these guidelines.

1. Prepare the cable for the connection; the type of cable and its gauge are provided in the wiring diagram herein. The maximum absorbed current of the Units is stated in



I-14

the data nameplate, located on the Unit's side panel, and in the wiring diagram herein. The maximum absorbed current of the units is required for the correct sizing of the power cables, protection breakers or fuses.

- a. Remove the insulating sheathing from the ends of the wires.
  - b. Use a wire-stripper to expose about 40 mm of internal wire on both ends of the signal/supply cord.
  - c. Using the wire-stripper, bend the tabs on the ends of the wire into a U shape.
2. Remove the screws to take off the cover and access the terminal block of the electrical cables.
  3. Unscrew the cable clamp under the terminal block and set it aside.
  4. Connect each wire to the terminal block, which is marked by letters and numbers, according to the wiring diagram. The earthing terminal or screw is marked by the relative symbol. The wires must be securely screwed to the terminal block and to the earthing terminal/screw.
  5. After ensuring that each connection is secure, roll the cables to avoid rain water from getting into the machine.
  6. Tightly secure the cable clamp to the cable, taking care not to damage the cable itself. The cable clamp must press on the external insulating sheath and not on the individual wires that it is made of.
  7. Using PVC insulating tape, insulate the unused cables; arrange them so that they are not touching any electrical or metal component.
  8. Put the cover back in place and screw it on, taking care to pass the cables through the hole created in the cover.



## Wiring Diagrams

The outdoor unit must be connected to a 220-240V/50HZ power supply line by a breaker or fuse and RCD.

These switches must make an omnipolar disconnection with a minimum contact opening distance of at least 3 mm (devices that allow complete disconnection of the appliance under the conditions of surge category III), must comply with regulations in force and sized for the maximum absorbed current as stated in the table.

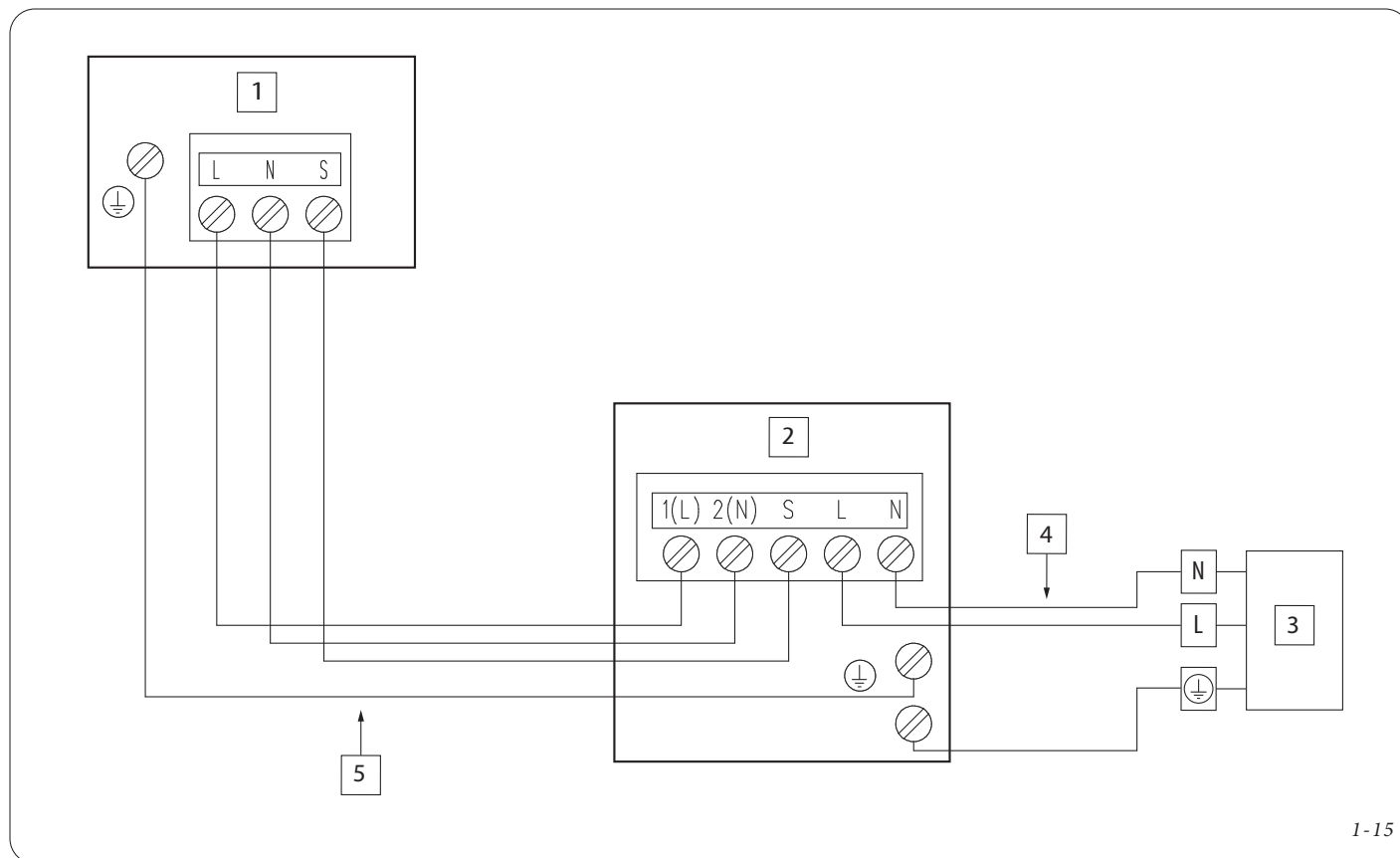
Outdoor Unit	Nominal Values		Voltage Field Tolerable		Maximum current absorbed	Maximum absorbed power
	Hz	V	V	V	A	W
MONO 9	50	220-240	198	264	8.5	1,820
MONO 12	50	220-240	198	264	9.0	1,850

The RCD must not have a differential current greater than 30 mA, and be at least type A or higher (do not use RCD type AC).

### NOTE:

- Secure the multipolar cables to the relative cable ties.
- Each earthing wire needs to be connected to the closest earthing terminal (only one wire per terminal); do not use the mount's fastening screws.

## UE Mono - UI Cas

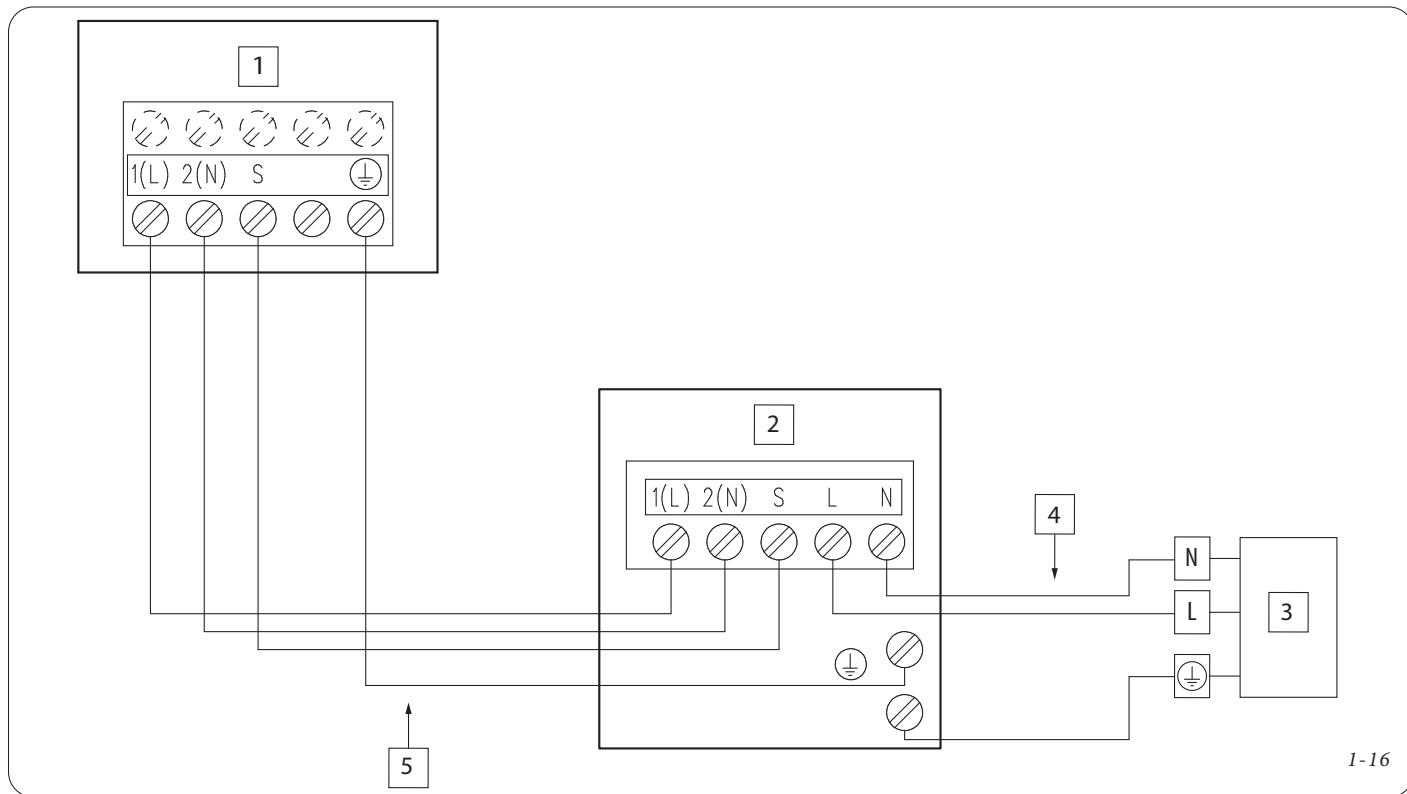


### KEY: (Fig. 1-15):

1. Indoor Unit CAS.
2. Outdoor Unit MONO.
3. Power supply 220-240 Vac / 50 Hz.
4. H07RN-F multipolar cable. Number of poles: 3. Minimum cable gauge: UI-UE MONO 9-12 = 1.5 mm<sup>2</sup>
5. H07RN-F multipolar cable. Number of poles: 4. Minimum cable gauge: UI-UE MONO 9-12 = 1.5 mm<sup>2</sup>



UE Mono - UI Cons

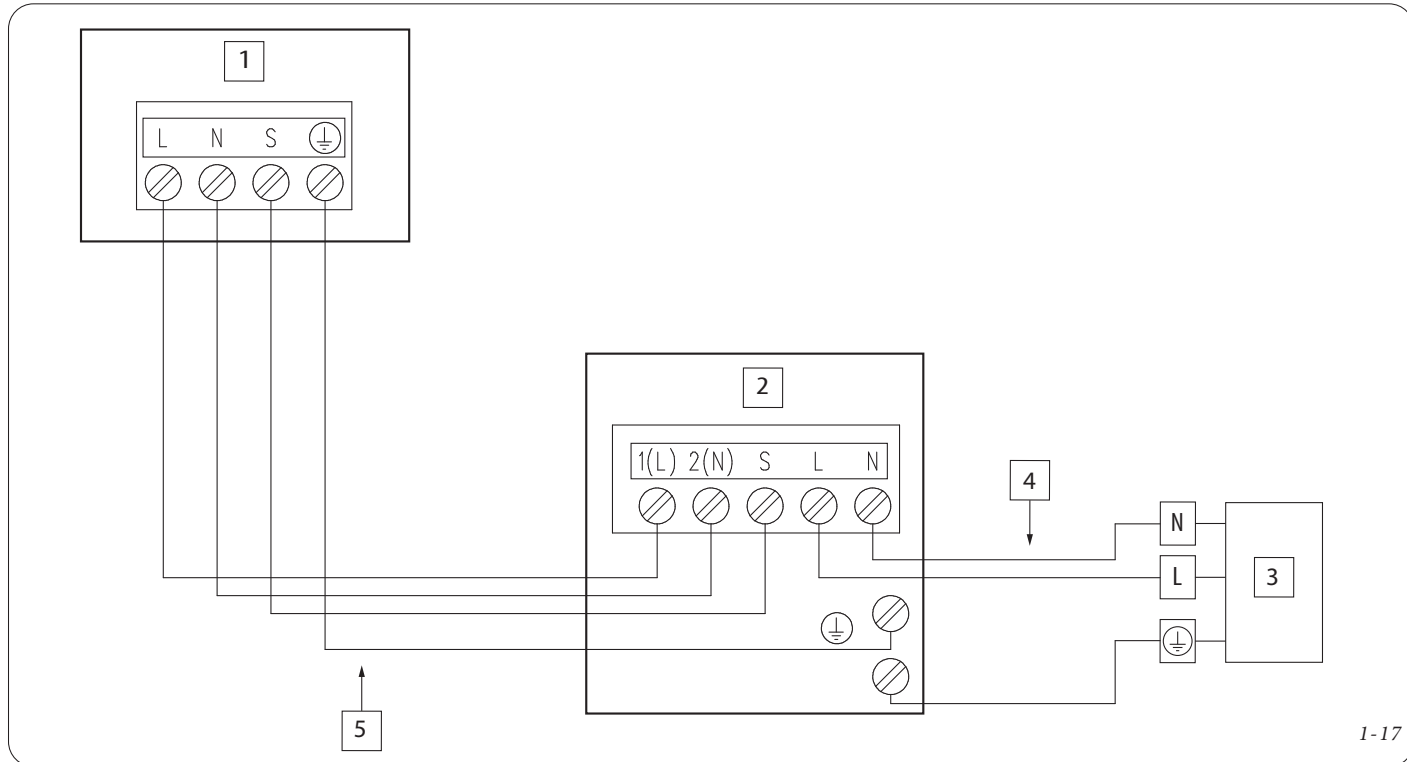


1-16

KEY: (Fig. 1-16):

- 1. Indoor Unit CONS.
- 2. Outdoor Unit MONO.
- 3. Power supply 220-240 Vac / 50 Hz.
- 4. H07RN-F multipolar cable. Number of poles: 3. Minimum cable gauge: UI-UE MONO 9-12 = 1.5 mm<sup>2</sup>
- 5. H07RN-F multipolar cable. Number of poles: 4. Minimum cable gauge: UI-UE MONO 9-12 = 1.5 mm<sup>2</sup>

UE Mono - UI Duct



1-17

KEY: (Fig. 1-17):

- 1. Indoor Unit DUCT.
- 2. Outdoor Unit MONO.
- 3. Power supply 220-240 Vac / 50 Hz.
- 4. H07RN-F multipolar cable. Number of poles: 3. Minimum cable gauge: UI-UE MONO 9-12 = 1.5 mm<sup>2</sup>
- 5. H07RN-F multipolar cable. Number of poles: 4. Minimum cable gauge: UI-UE MONO 9-12 = 1.5 mm<sup>2</sup>

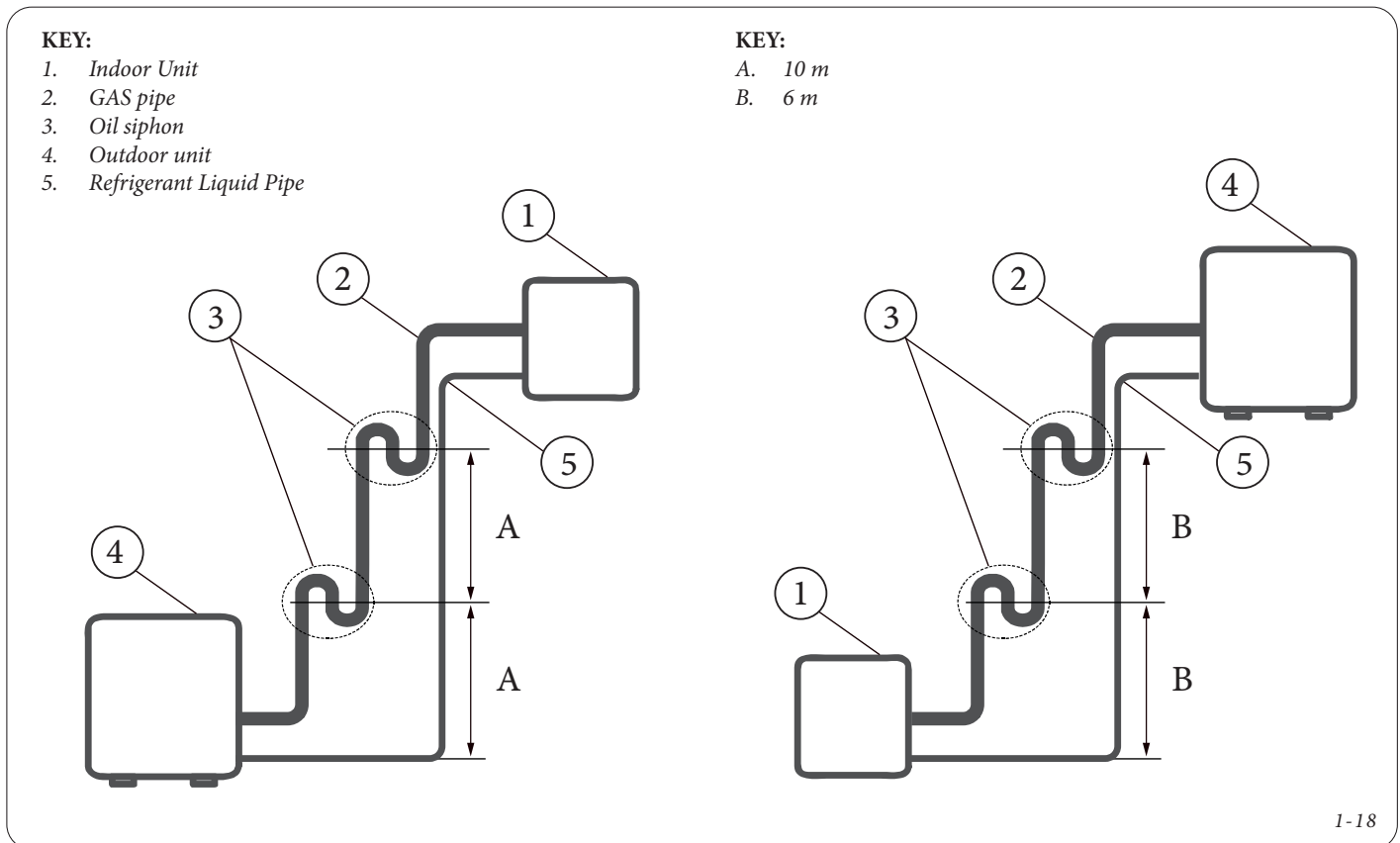


## 1.2.7 CONNECTION OF COOLING PIPE

When the coolant pipes are connected, do not let substances or gases other than the specified coolant get in. The pressure of other gases or substances reduces the capacity of the unit and can cause an abnormally high pressure in the cooling cycle. This can cause explosions and injuries.

The cooling circuit of MONO-air conditioners uses the coolant R32, therefore, it is necessary to take some measures for the proper operation of the machine:

- **The length of the refrigerant pipes affects the performance and energy efficiency of the unit: the nominal efficiency was tested on the unit with a pipe 5 m long; a minimum route of 3 m is required for operation to reduce excess vibrations and noise to a minimum.**
- make sure that the minimum bending radius of the pipes is at least 10 cm;
- only use equipment and fittings for R32;
- for especially elevated height differences, siphons must be installed on the gas pipes for the deposit of oil (every 6m of change in height) as indicated in the figure below;



- the length of the pipes between the outdoor and indoor unit and the height difference must not exceed the indicated limits.

Outdoor Unit	Gas pipe outside diameter [mm - inch]	Liquid line pipe outside diameter [mm - inch]	Maximum length R32 preload (liquid pipe)	Maximum length with top up (liquid pipe)	Indoor unit-outdoor unit maximum height difference	R32 refrigerant pre-charge	Top-up for every additional metre of the liquid line
UE MONO 9	Ø 9.52 - 3/8"	Ø 6.35 - 1/4"	≤ 5 m	25 m	10 m	0.65 kg	12 g/m
UE MONO 12	Ø 9.52 - 3/8"	Ø 6.35 - 1/4"	≤ 5 m	25 m	10 m	0.71 kg	12 g/m





### ATTENTION FOR THE USE OF R32 COOLANT

When using a flammable coolant, the device must be kept in a well-ventilated area where the size of the room corresponds to the area of the room, as specified for operation. The device must be installed, used and kept in a room larger than  $Xm^2$  (see values reported in the table below). For information on the minimum surface area of the installation room and the maximum quantity of refrigerant, refer to the following table and the Safety Manual.

- The mechanical connections of the pipes are not allowed in-wall/floor.
- The pipe connections must have maximum allowed gas leak of 3g/year at 25% the maximum allowed pressure.
- The connections of the pipes used inside must be compliant with ISO 1490: when connectors are reused indoors, the gaskets must be replaced and the flared part of the joints must be reworked.

The installation room of the indoor unit must comply with the minimum surface area requirements shown below:

Minimum surface area of the installation room ( $A_{min}$ in $m^2$ )			
Quantity of R32 (kg)	Installation height (m)		
	0.6	1.8	2.2
1.0	9	1	1
1.05	9.5	1.5	1
1.1	10.5	1.5	1
1.15	11.5	1.5	1
1.2	12.5	1.5	1
1.25	13.5	1.5	1
1.3	14.5	2	1.5
1.35	16	2	1.5
1.4	17	2	1.5
1.45	18	2	1.5
1.5	19.5	2.5	1.5
1.55	21	2.5	2
1.6	22	2	2
1.65	23.5	3	2
1.7	25	3	2
1.75	26.5	3	2
1.8	28	3.5	2.5
1.85	29.5	3.5	2.5
1.9	31	3.5	2.5
1.95	33	4	2.5
2	34	4	3
2.05	36	4	3
2.1	38	4.5	3
2.15	40	4.5	3
2.2	41	5	3.5
2.25	43	5	3.5
2.3	45	5	3.5
2.35	47	5.5	4
2.4	49	5.5	4
2.45	51	6	4
2.5	54	6	4
2.55	56	6.5	4.5
2.6	58	6.5	4.5
2.65	60	7	4.5
2.7	63	7	5
2.75	65	7.5	5
2.8	67	7.5	5
2.85	70	8	5.5

For specific information on the amount of refrigerant gas, please refer to the label applied on the unit.



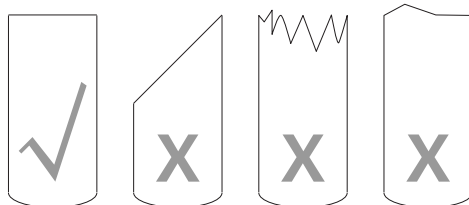
### Insulating the chiller lines.

- during operation, the gas and liquid pipes could reach very high or very low temperatures, making it necessary to insulate them efficiently. Otherwise, product performance would be ruined, with the possible breakage of the compressor;
- the insulation material must be able to withstand temperatures exceeding 120°C;
- the gas and liquid pipes must be insulated separately. Insulating them together would downgrade their performance.

#### Pitch 1: Cutting the pipes

When preparing coolant pipes, be very careful to cut them and flare them correctly. This ensures efficient operation and minimising the need for future maintenance.

1. Measure the distance between indoor and outdoor unit.
2. Using a pipe cutter, cut the pipe a bit longer than the measured distance.
3. Make sure that the pipe is cut at a 90° angle.



1-19



**DO NOT DEFORM THE PIPE DURING CUTTING:**  
damaging, denting or deforming the pipe during cutting will drastically reduce the unit's heating efficiency.

#### Pitch 2: Remove any burrs

Burrs can affect the tightness of the connection of the coolant pipes. They must be completely removed.

1. Hold the pipe with a downwards angle to avoid the burrs from falling into the pipe.
2. Using a reamer or a deburring machine, remove all of the burrs from the cut section of the pipe.

#### Pitch 3: Flare the ends of the pipes

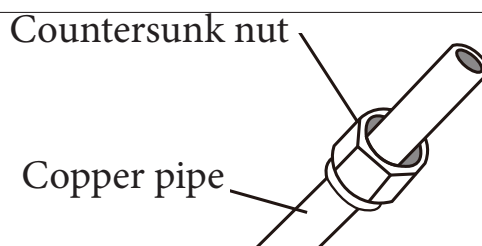
Correct flaring is essential for obtaining water-tightness.

1. After removing the burrs from the cut pipe, close the ends with PVC tape to avoid foreign materials from getting into the pipe.
2. Coat the pipe with insulating material.
3. Place flared nuts on both ends of the pipe, making sure they are in the right direction.



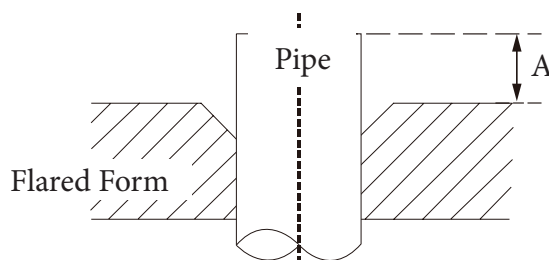
#### ATTENTION

It is NOT possible to change the direction of the nut after flaring.



1-20

4. When ready to perform the flaring work, remove the PVC tape from the ends of the pipe. Block the flared shape on the end of the pipe (see below).



1-21



5. The end of the pipe must go beyond the flared shape according to the dimensions given in the table below.

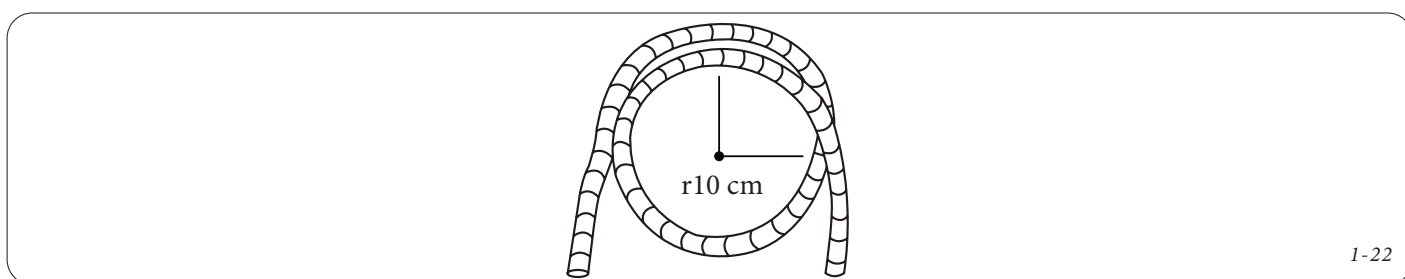
Pipe outside diameter (mm)	A (mm)	
	Min.	Max.
Ø 6.35 mm (1/4")	0.7	1.3
Ø 9.52 mm (3/8")	1.0	1.6

6. Position the flaring tool on the shape.
7. Turn the handle of the flaring tool clockwise until the pipe is completely flared.
8. Remove the flaring tool, then check the end of the pipe for any cracks and that it is evenly flared.



**ATTENTION MINIMUM BENDING RADIUS:**

when coolant pipes are bent, make sure that the minimum bending radius is at least 10cm.



1-22

**Pitch 4: Pipe Connection**

When connecting coolant pipes, be careful not to use an excessive torque or not to deform the pipes in any way. One must first connect the low pressure pipe, then the high pressure one.

Pipe outside diameter (mm)	Tightening torque (N*m)	Flaring dimensions (B) (mm)		Flaring shape
		Minimum	Maximum	
Ø 6.35 mm	18 ~ 20	8.4	8.7	
Ø 9.52 mm	32 ~ 39	13.2	13.5	



**DO NOT USE EXCESSIVE TORQUE:**

Excessive force can break the nut or damage the coolant pipes. Do not exceed the torque requisites provided in the table above.



1. Unscrew the valve cover on the side of the outdoor unit.
2. Remove the protective caps from the ends of the valves.
3. Align the flared end of the pipe with each valve and tighten the flared nut as tight as possible by hand.
4. Using a spanner, grip the valve body. **DO NOT** grip the nut that seals the service valve.
5. While firmly gripping the valve body, use a torque wrench to tighten the flared nut according to the correct torque values.
6. Slightly loosen the flared nut, then tighten again.
7. Repeat points 3 to 6 for the remaining pipes.



1-23

### 1.2.8 COOLING CIRCUIT VACUUM OPERATIONS

Air and foreign objects in the cooling circuit can reduce efficiency, cause an anomalous rise in pressure damaging the air conditioner, cause the unit to stop, damage to property and people.

Use a vacuum pump and a vacuum gauge to remove any non condensing gases and humidity from the cooling system.



#### ATTENTION, BEFORE PERFORMING VACUUM OPERATIONS:

- check that the electrical supply of the connection pipes between indoor and outdoor units are connected correctly.
- the vacuum operation **MUST BE** performed after checking the tightness of the system, as per UNI EN378-2, according to the principles of good plant engineering practice.

- a. Unscrew the caps from the cocks and from the outdoor unit service outlet.
- b. Connect a flexible hose (for conditioning) from the manometric unit to the service outlet.
- c. Connect a flexible hose (for conditioning) from the manometric unit to the vacuum pump.
- d. Open the "LOW" and "VAC" actuator of the manometric unit (**Check that the remaining actuators are closed if not used**).
- e. Turn on the vacuum pump to remove air from the cooling pipe.
- f. Leave the vacuum pump on until the value of 500 mtor is reached (the value will be visible on the indicator of the manometric unit).
- g. Close the "LOW" and "VAC" actuator, turn off the vacuum pump.
- h. Disconnect a flexible hose (for conditioning) from the service outlet.
- i. Proceed with opening the cocks by inserting the hex key into the valves until completely open.
- j. Reposition the caps on the cocks and on the service outlet.



**GENTLY OPEN THE VALVES:  
Do not try to force the valve to open any more.**



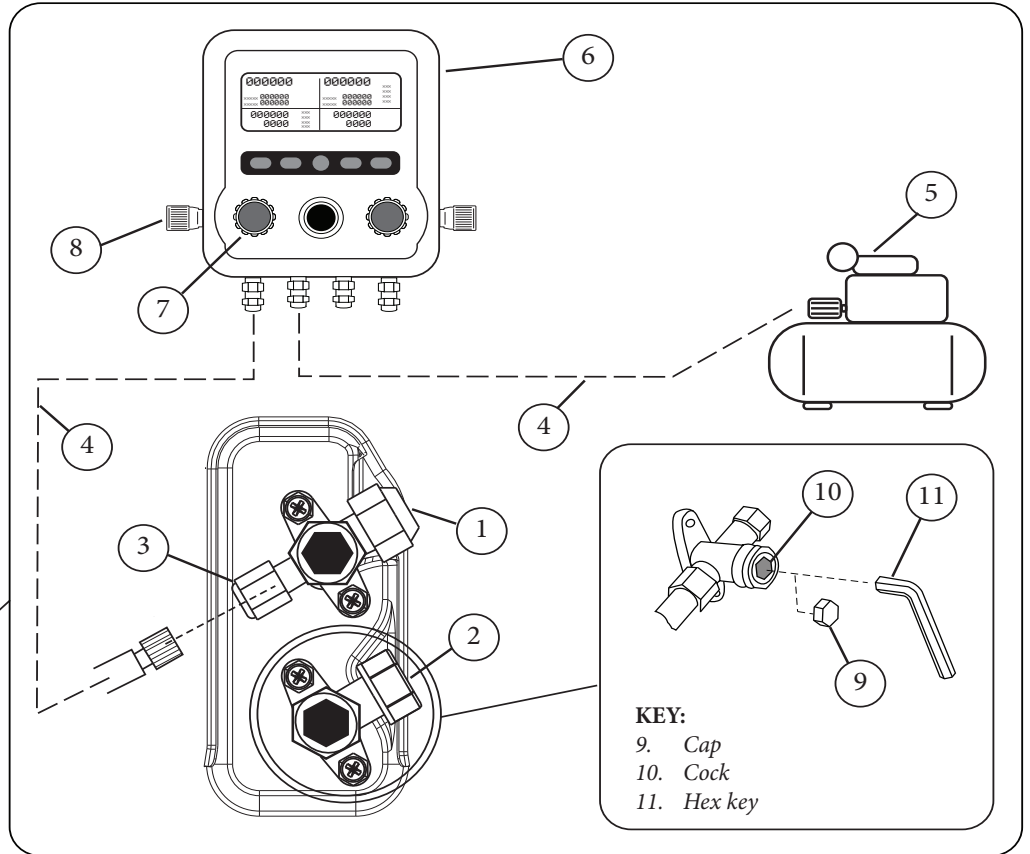
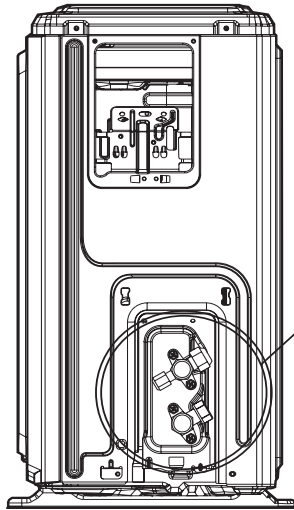
#### ATTENTION:

- The vacuum operation must be carried out upon initial installation and when the device is repositioned.



**KEY:**

1. Cooling liquid valve
2. Gas valve
3. Service outlet
4. Flexible Conditioning Hose
5. Vacuum pump
6. Digital manometric unit (Integrated vacuum switch)
7. "VAC" actuator
8. "LOW" actuator



- KEY:**
9. Cap
  10. Cock
  11. Hex key

1-24

### 1.2.9 ADDITIONAL COOLANT CHARGE

Some systems require an additional charge depending on the length of the pipes. The standard length of pipes varies based on the model. The nominal efficiency was tested on the unit with 5 m pipe length. The coolant must be added in through the low pressure valve of the outdoor unit. The additional coolant to be loaded in can be calculated with the following formula:

Length connection pipe (m)	Venting method	Additional coolant
> Standard pipe length	Vacuum pump	Liquid side: Ø 6.35 mm (1/4") R32: (Pipe length - standard length x number of combinable indoor units) x 12g/m

Fill in the label for coolant loading applied to the product with permanent ink, as instructed below:

- 1; factory coolant load of the product (see data nameplate)
- 2; amount of additional coolant charged on-site
- 1+2; total coolant charge

Make sure that the total refrigerant charge does not exceed the maximum refrigerant charge specified below:

Outdoor Unit	1 - Coolant preload (gr.)	2 - Additional coolant max q.ty (gr.)	1+2 - Max allowed load (gr.)
UE MONO 9	650	240	890
UE MONO 12	710	240	950

The calculation of the tons of CO<sub>2</sub> equivalent occurs according to the formula:

- Kg x GWP / 1000

GWP: Global Warning Potential= 675 for R32



## 1.2.10 CHECKING ELECTRICAL AND GAS LEAKAGE

### Electrical safety checks:

- Check that the electrical system of the unit is safe and functioning correctly.
- Check the earthing both visually and by measuring the resistance with a tester.
- During test run, check for any electrical leakage using an electric probe and a multimeter to run a complete test.
- If an electrical leakage is found, immediately switch off the unit and call an authorised electrician to fix it.

### Gas leak checks:



### ATTENTION - RISK OF ELECTRIC SHOCK:

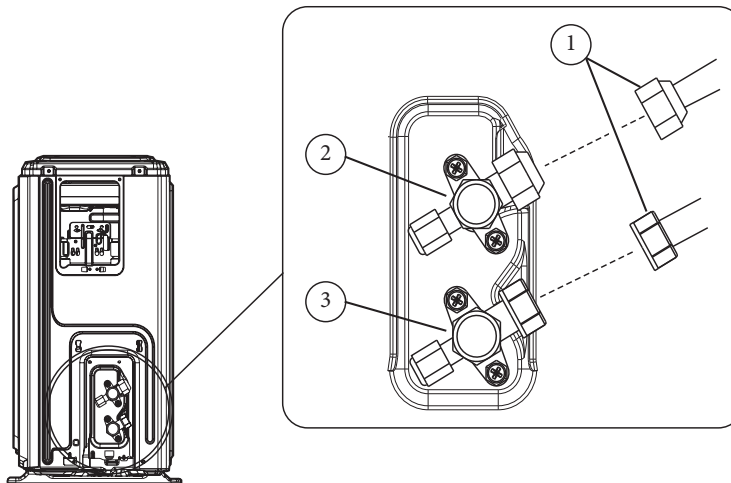
**All cables must be compliant with local and national electric regulations and must be installed by an authorised technician.**

- Check that the gas and coolant liquid valves (high and low pressure) are completely open.
- Check all fittings by their nuts and confirm that the system does not have any leaks. There are two different methods to check for gas leaks:
  1. With bubbles; using a soft brush, apply soapy water or liquid detergent on all pipe fitting points of the indoor and outdoor units (**bubbling means there is a leak**).
  2. Leak tester method; refer to the instructions manual of the device for correct use.

After confirming that all pipe connection points DO NOT have any leaks, put the cover back on the valves on the outdoor unit.

#### KEY:

1. Fitting nuts
2. Cooling liquid valve
3. Gas valve



1-25

## 1.2.11 OPERATING TEMPERATURE

When your air conditioner is used beyond the following temperature ranges, some safety protection functions can get activated and cause non-optimal unit performance.

	COOLING mode	HEATING mode	DRY mode
Room temperature	16°C - 32°C	0°C - 30°C	10°C - 32°C
External temperature	-15°C - +50°C	-15°C - +24°C	0°C - 50°C

### To further optimise the performance of your unit, do the following:

- Keep doors and windows closed.
- Limit energy consumption with TIMER ON and TIMER OFF functions.
- Do not block the air intakes and outlets.
- Check and clean the air filters on a regular basis.



## 1.2.12 PERFORMING THE TEST

### *Before performing the test:*

The test can be performed once the entire system has been completely installed. Confirm the following points before running the test:

- The indoor and outdoor units are correctly installed.
- Pipes and cables are correctly connected.
- No obstacle near the infeed and at the unit outlet that could cause poor performance or malfunctioning of the product.
- The cooling circuit does not leak.
- The draining system has no impediments and the drain is in a safe place.
- Thermal insulation was installed correctly.
- The earthing wires are connected correctly.
- The length of the pipes and the capacity of the coolant are measured.
- The power voltage is correct for the air conditioner.



### **Attention:**

**Failure to run the test can cause damage to the units, damage to the property or personal injury.**

### *How to run the test:*

1. Open the liquid and gas shut-off valves.
2. Turn on the main power supply switch and let the unit heat up.
3. Set the air conditioner on COOL.
4. For the indoor unit;
  - Make sure that the remote control and relative buttons are working correctly.
  - Make sure that the louvres move correctly and can be modified from the remote control.
  - Check whether the room temperature is measured correctly.
  - Make sure that the indicators on the remote control and on the view panel on the indoor unit are working correctly.
  - Make sure that the manual keys on the indoor unit are working correctly.
  - Check that the draining system is not obstructed and that it drains freely.
  - Make sure there are no anomalous vibrations or noise during operation.
5. For the outdoor unit:
  - Check whether the cooling circuit is leaking.
  - Make sure there are no anomalous vibrations or noise during operation.
  - Make sure that the wind, noise and water generated by the unit do not bother the neighbours or pose a safety hazard.

### **NOTE:**

If the unit is not working correctly or is not working as expected, refer to the Troubleshooting section of the User Manual for the Indoor Unit before calling customer service.



# 2 INSTRUCTIONS FOR MAINTENANCE

## 2.1 GENERAL WARNINGS

**NOTE:**

Before cleaning the air conditioner, be sure to switch the unit off and disconnect it from the power supply plug:

In case of;

**Not using the unit** for an extended period of time:

- Clean the indoor unit and air filter.
- Select FAN ONLY mode and let the indoor fan run a while to dry out the inside of the unit.
- Cut off the power supply and remove the battery from the remote control.
- Periodically check the components of the outdoor unit. Contact a customer assistance centre if the unit requires it.

**Re-using the unit** after an extended period of time:

- Check that the fan grid of the outdoor unit is not obstructed.
- Use a dry cloth to clean the dust from the rear air intake grid, to avoid the dust from being released into the room of the indoor unit.
- Check that the wiring is not damaged or disconnected.
- Check that the air filter of the indoor unit is installed and intact.



**Attention:**

**If two or more units are running simultaneously, make sure that the modes are not conflicting. HEATING mode has priority over all other modes.**



# 3 TECHNICAL DATA

## 3.1 MULTI TECHNICAL DATA

INSTALLER

MAINTENANCE TECHNICIAN

TECHNICAL DATA

UE MONO		9		
Heating performance		CAS	CONS	DUCT
Rated output power (min - max)	Btu/h	9,500 (1,500~12,300)	10,000 (1,500-13,500)	11,000 (3,200-11,877)
Rated output power (min - max)	kW	2.78 (0.45-3.61)	2.93 (0.44-3.96)	3.22 (0.94-3.48)
Rated absorbed power	W	750	710	850
Rated COP	-	3.71	4.13	3.79
Rated absorbed current	A	4.20	3.20	3.73
Operating temperature	°C	-20/24		
Cooling performance				
Rated output power (min - max)	Btu/h	9,000 (1,200~11,600)	9,000 (1,200~13,000)	9,000 (1,200~13,000)
Rated output power (min - max)	kW	2.64 (0.36-3.40)	2.64 (0.36-3.81)	2.64 (0.35-3.82)
Rated absorbed power	W	810	650	720
Rated EER	-	3.26	4.06	3.66
Rated absorbed current	A	3.60	4.50	3.20
Operating temperature	°C	-15/50		
Outdoor unit				
Compressor type	-	Rotary DC inverter		
Air flow rate	m <sup>3</sup> /h	2,200		
Sound pressure	dB(A)	53.50	54	53
Sound power	dB(A)	63	62	62
Dimensions (H x L x D)	mm	555x765x303		
Net/gross weight	kg	24.60/27		
General data				
Electric power supply	Ph/V/Hz	1 Ph/220-240/50		
Maximum absorbed power/current	W	1,820		
Maximum current absorbed	A	8.50		
Type of coolant/GWP	-	R32/675		
Coolant preload	kg	0.65		
Liquid/gas coolant connections	mm(inch)	6.35(1/4)-9.52(3/8)		

THE REPORTED NOMINAL DATA REFERS TO THE FOLLOWING CONDITIONS (in compliance with EN 14511)		
ENVIRONMENT	COOLING (°C)	CENTRAL HEATING (°C)
INDOOR AIR-OUTDOOR AIR Temp. (db/wb)	27/19 - 35/24	20/15 - 7/6



UE MONO		12		
Heating performance		CAS	CONS	DUCT
Rated output power (min - max)	Btu/h	13,000 (1,600~14,800)	13,000 (1,550-16,000)	11,500 (3,400-15,241)
Rated output power (min - max)	kW	3.81 (0.47-4.34)	3.81 (0.45-4.69)	3.37 (1.00-4.47)
Rated absorbed power	W	1.020	980	900
Rated COP	-	3.74	3.89	3.74
Rated absorbed current	A	4.50	4.43	3.98
Operating temperature	°C	-20/24		
Cooling performance				
Rated output power (min - max)	Btu/h	12,000 (2,900~14,200)	12,000 (2,600~14,500)	12,000 (1,800~13,334)
Rated output power (min - max)	kW	3.52 (0.85-4.16)	3.52 (0.76-4.25)	3.52 (0.53-3.91)
Rated absorbed power	W	1.015	1.000	1.090
Rated EER	-	3.47	3.52	3.23
Rated absorbed current	A	4.50	4.52	4.82
Operating temperature	°C	-15/50		
Outdoor unit				
Compressor type	-	Rotary DC inverter		
Air flow rate	m <sup>3</sup> /h	2,200		
Sound pressure	dB(A)	57	54	55.50
Sound power	dB(A)	62	62	62
Dimensions (H x L x D)	mm	555x765x303		
Net/gross weight	kg	26.60/29		
General data				
Electric power supply	Ph/V/Hz	1 Ph/220-240/50		
Maximum absorbed power/current	W	1,850		
Maximum current absorbed	A	9		
Type of coolant/GWP	-	R32/675		
Coolant preload	kg	0.71		
Liquid/gas coolant connections	mm(inch)	6.35(1/4)-9.52(3/8)		

THE REPORTED NOMINAL DATA REFERS TO THE FOLLOWING CONDITIONS (in compliance with EN 14511)

ENVIRONMENT	COOLING (°C)	CENTRAL HEATING (°C)
INDOOR AIR-OUTDOOR AIR Temp. (db/wb)	27/19 - 35/24	20/15 - 7/6



### 3.1.1 SEASONAL ENERGY EFFICIENCY DATA

INDOOR MODEL NAME	UI CAS 9	UI DUCT 9	UI CONS 9
OUTDOOR MODEL NAME	UE MONO 9	UE MONO 9	UE MONO 9
<b>Seasonal energy efficiency data - heating</b>			
Thermal load P <sub>designH</sub> (average climatic zone)	kW	2.00	2.10
Seasonal coefficient of performance - SCOP (average climatic zone)	-	4.10	
Seasonal electricity consumption Q <sub>HE</sub> /A	kWh/a	683	717
Energy efficiency class	-	A+	
<b>Seasonal energy efficiency data - cooling</b>			
Thermal load P <sub>designC</sub>	kW	2.60	
Seasonal energy efficiency ratio - SEER	-	6.30	6.50
Seasonal electricity consumption Q <sub>CE</sub>	kWh/a	144	140
Energy efficiency class	-	A++	

INDOOR MODEL NAME	UI CAS 12	UI DUCT 12	UI CONS 12
OUTDOOR MODEL NAME	UE MONO 12	UE MONO 12	UE MONO 12
<b>Seasonal energy efficiency data - heating</b>			
Thermal load P <sub>designH</sub> (average climatic zone)	kW	2.70	2.60
Seasonal coefficient of performance - SCOP (average climatic zone)	-	4.10	4.00
Seasonal electricity consumption Q <sub>HE</sub> /A	kWh/a	922	910
Energy efficiency class	-	A+	
<b>Seasonal energy efficiency data - cooling</b>			
Thermal load P <sub>designC</sub>	kW	3.50	
Seasonal energy efficiency ratio - SEER	-	6.80	6.50
Seasonal electricity consumption Q <sub>CE</sub>	kWh/a	184	188
Energy efficiency class	-	A++	





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