

External unit

MiSAN-YEE 1 S 2.1-8.1

Installation Manual



en

05-2024

Keep this manual together with the wiring diagram in an accessible place for the operator for future reference.

Dear Customer,

We congratulate you on choosing these product.

Clivet has been working for years to offer systems able to assure the maximum comfort for a long time with highly-reliable, efficient, high-quality and safe solutions.

The target of the company is to offer advanced systems, that assure the best comfort and reduce energy consumption as well as the installation and maintenance costs for the entire life-cycle of the system.

With this manual, we want to give you information that are useful for all phases: from reception, installation and use to disposal - so that such an advanced system can provide the best performances during installation and use.

Best regards and have a good read.

CLIVET Spa

The original instructions are written in Italian.

All other languages are translations of the original instructions.

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1. Glossary

Acronyms or abbreviations are used in this manual to indicate components or parameters. The acronyms and their meanings are given in the table.

Sign	Description
DHW	Domestic hot water
AHS	Backup boiler
HMI	User interface
IBH	Backup electric heater
OFN	Oxygen-Free-Nitrogen
P _i	Unit pump
P _o	Secondary circuit pump (or Zone 1 pump for double zone systems)
P _c	Zone 2 pump (for double zone systems)
P _d	DHW recirculation pump
P _s	Solar circuit pump
Pe	Evaporation pressure in Cooling or Condensation pressure in Heating
SV1	3-way circuit/DHW diverter valve
SV2	3-way diverter valve for direct double zone systems
SV3	3-way mixing valve for mixed circuit
TBH	Backup electric heater for DHW tank
T1	Water supply temperature from additional heating source (with IBH heater or AHS boiler)
T2	Refrigerant temperature entering the user side exchanger (plate heat exchanger) in Cooling mode (or leaving in Heating mode)
T3	Refrigerant temperature leaving the source exchanger (coil) in Cooling mode (or entering in Heating mode)
T4	Outdoor air temperature
T5	DHW tank temperature
T1S	Water supply temperature setpoint
Ta	Room air temperature, detected by the probe in the HMI
Tbt1	Temperature of the upper part of the inertial storage tank
Th	Compressor suction refrigerant temperature
Tp	Compressor discharge refrigerant temperature
Tsolar	Water temperature in the solar thermal circuit
Tw2	Water supply temperature for the mixed zone (for double zone systems)
TWin	Unit water return temperature
TWout	Unit water supply temperature
ODU	External unit
IDU	Internal unit

2. General

2.1 About the manual

- The manual ensures proper installation, use and maintenance of the unit
- this manual is an integral and essential part of the product
- keep this manual together with the wiring diagram in an accessible place for the operator. It should always accompany the product, even if it is transferred to another owner or user
- recipients of the instructions in the manual are indicated in the "Recipients" chapter
- the recipient is indicated at the beginning of each section of the manual
- recipients, to the extent of their responsibility, are required to read the instructions and warnings in this manual as they provide important information on safe installation, use and maintenance.

Remember that:

- the manufacturing The manufacturer accepts no liability for damage to persons or property resulting from failure to observe the rules in this manual
- failure to observe the instructions in this manual will result in forfeiture of the warranty
- the manufacturer reserves the right to make changes or improvements to this documentary material and to the units without prior notice
- visit the manufacturer's website for up-to-date details
- this manual contains proprietary information, all rights reserved, it may not be reproduced or photocopied, either in whole or in part, without the prior written consent of manufacturer.

2.1.1 Symbols

The symbols in the following chapter can be found in the manual and on the product, and provide quick and clear information for correct and safe use.

2.1.1.1 Safety symbols

Danger

This symbol indicates warnings, failure to comply may result in serious harm to health and fatal injuries.

Warning

This symbol indicates warnings, failure to comply may result in irreparable damage to the product or harm to the environment.

Prohibition

This symbol indicates operations that must never be

carried out.



Note

This symbol indicates important information.

2.1.1.2 Editorial symbols

In the texts

Purpose of the action: indicates the purpose of a sequence of actions.

(it is identified by bold text followed by :)

- ▶ this symbol indicates actions that are required
- this symbol indicates the expected result after an action
- this symbol indicates the lists

In the images

1 uniquely indicates a component



indicates a group of components



indicates a sequence of actions

In the images, dimensions are expressed in millimetres unless otherwise indicated.

2.1.1.3 Symbols on the unit

The following symbols are used in some parts of the product:



Instructions for the User

Read the User Manual carefully before using the product.



Instructions for the User

Read the Installer Manual carefully before installing the product.



Instructions for the Technical Support Service

Read the Technical Support Service Manual carefully before carrying out any operation on the product.

2.1.2 Recipients

2.1.2.1 User

Inexperienced person who is capable of:

- operating the product safely for people, for the product and for the environment
- interpreting elementary diagnostics of faults and abnormal operating conditions
- carrying out simple adjustment, test and maintenance operations.

2.1.2.2 Installer

Experienced and qualified person able to:

- to put the product in a safe operating condition for people, for the product and for the environment
- to comply with the regulations in force in the country of destination
- to provide the user with basic information on safe use and maintenance in accordance with this manual and current national regulations
- comply with the regulations in force in the country of destination.

2.1.2.3 Technical support service

Experienced person, qualified and authorised directly by the manufacturer to:

- carry out a diagnosis of product faults and abnormal operation, possibly using information provided by the user
- rectify faults, carrying out the necessary repairs, replacements and adjustments that will restore the product's ability to function correctly and safely for the people, for the product and for the environment
- comply with the regulations in force in the country of destination.

2.1.3 Document organisation

- The manual is divided into sections, each dedicated to one or more recipients
- the recipient is indicated at the beginning of each section of the manual.

2.2 General safety warnings

 Read the "About the manual" chapter carefully before proceeding with any operation.

 Each chapter contains specific warnings for the operations given therein. These warnings should be read before starting any activities.

 For every operation, always comply with current national regulations.

 All personnel must be aware of the operations and of the hazardous situations that may arise when starting any operations on the unit.

 Any contractual and non-contractual liability for damage caused to persons, animals or property by installation, adjustment or maintenance errors or improper use is excluded.

 Any uses not expressly indicated in this manual are not permitted.

 Do not change or tamper with the device as this can lead to hazardous situations.

 Use appropriate safety clothing and equipment.

 The manufacturer accepts no liability for failure to comply with current safety and accident prevention regulations.

 The manufacturer reserves the right to make changes to its models at any time to improve its product, subject to the essential characteristics described in this manual.

 The manufacturer is not obliged to add these changes to units previously manufactured, already delivered or being built.

 The unit is suitable for use by children aged 8 years and over and by persons with reduced physical, sensory or mental capabilities or lack of experience or knowledge if they are properly supervised or have received instructions on the safe use of the device and have understood the associated hazardous situations. Children must not play with the device. Cleaning and maintenance operations must not be carried out by children without supervision.

 It is forbidden to touch the device with wet or damp parts of the body.

 It is forbidden to carry out any operation before disconnecting the device from the mains power supply by turning the system's main switch to "off".

 It is forbidden to change the safety or control devices without the device manufacturer's authorisation and instructions.

 It is forbidden to pull, unplug or twist the electrical cables coming out of the device, even if it is disconnected from the mains power supply.

 It is forbidden to introduce objects and substances through the air intake and supply grilles.

 It is forbidden to open the access doors to internal parts of the unit without first turning the system's main switch to "off".

3. About R-32 refrigerant

i Refer to the indoor unit manual:

- Prerequisites

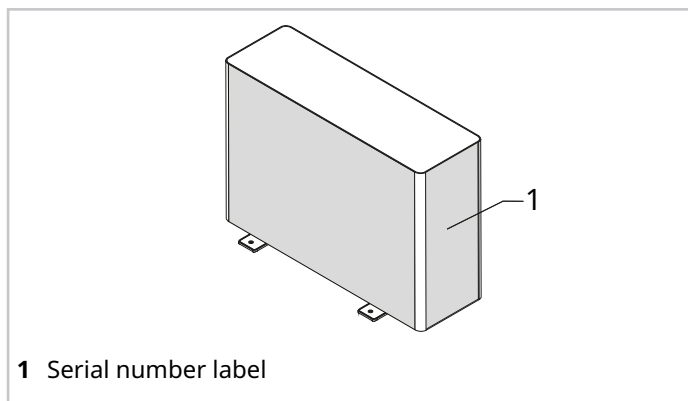
The serial number label is positioned on the unit and allows to identify all the unit features.

The matriculation plate shows the indications foreseen by the standards, in particular:

- unit type
- serial number
- year of manufacture
- wiring diagram number
- electrical data
- manufacturer logo and address

i The serial number uniquely identifies each unit and enables specific parts to be identified.

⚠ Tampering, removal, missing identification labels or anything else that does not allow the product to be safely identified, makes installation and maintenance operations difficult.



The relevant regulatory framework can be found in the declaration of conformity enclosed with this document.

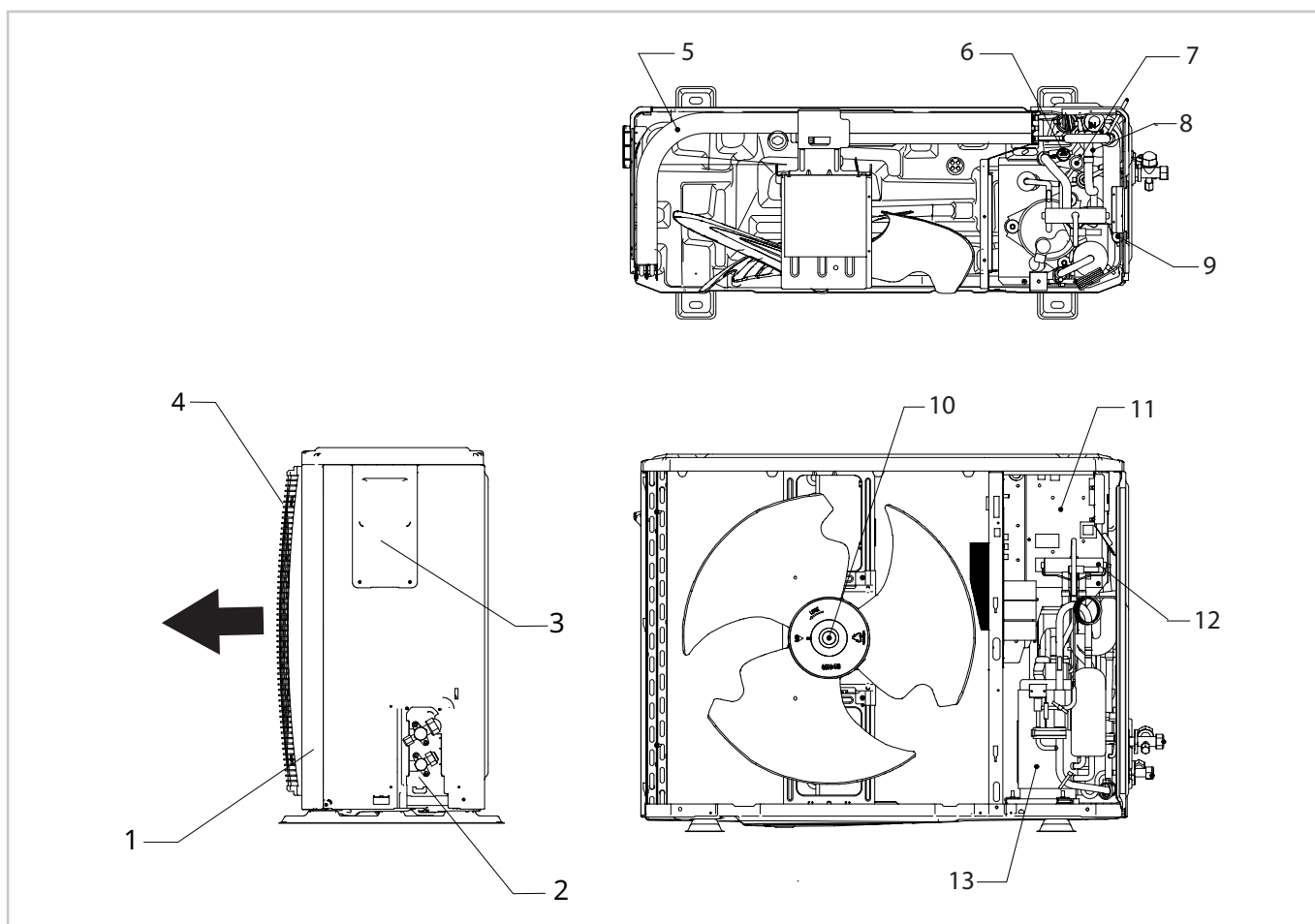
The units are designed for:

- Outdoor installation of MiSAN-YEE 1 S
- operation within the limits and with their performance characteristics set out in this document.

Floor-mounted air-to-water split heat pump for heating, cooling and domestic hot water production

Indoor units that can be combined:

3.1 Main components



No.	Component
1	Access panel to internal parts
2	Refrigerant fittings
3	Electrical connections
4	Fan grille
5	Heat exchanger
6	Pressure sensor
7	High pressure switch
8	Separator
9	Low pressure switch
10	Fan motor
11	Electrical panel
12	4-way valve
13	Inverter compressor

i The images are provided for illustrative purposes only.

4. Before installation

4.1 Prerequisites

-  This section is intended exclusively for the Installer.
-  Refer to the Technical data chapter for details.
-  Follow the safety instructions in the "About R-32 refrigerant" chapter on page 7.
-  When handling the unit, use equipment appropriate to the weight of the unit.
-  Check that all handling equipment complies with local safety regulations (cran, forklifts, ropes, hooks, etc.).
-  During manual operations, it is mandatory to comply with the maximum weight per person as required by current legislation.
-  Provide personnel with personal protective equipment appropriate for the situation, such as hard hat, gloves, safety shoes, etc.
-  Observe all safety procedures in order to guarantee the safety of the personnel present and the of material.
-  To avoid injury, do not touch the unit's air inlet or aluminium fins.
-  Do not use the fan grille handles to move the unit.
-  Keep the unit packed during handling.
-  Remove the packaging when you have reached the point of installation.

4.2 Reception

Before accepting the delivery, check:

- that the unit has not been damaged during transport
- that the materials delivered match those indicated on the transport document, comparing the data with the serial number label on the packaging.

In case of damage or anomaly:

- immediately write down the damage found on the transport document and quote this sentence: "Accepted with reservation due to evident shortages/damages during transport"
- refer to the contractual document.

 Any disputes must be made within 8 days from the date of the delivery. Complaints after this period are invalid .

4.3 Storage

Respect the indications on the outside of the pack.

In particular:

- minimum ambient temperature -10 °C
 - maximum ambient temperature +50 °C
 - maximum relative humidity 95%
-  Exceeding these limits can cause irreversible damage to the unit.

4.4 Handling

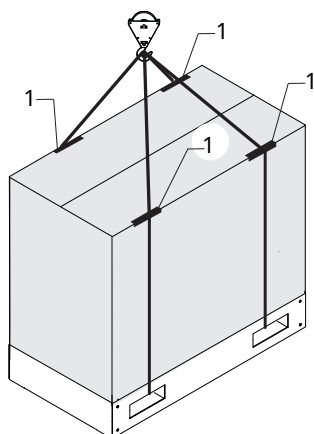
The unit can be handled:

- with a hoist or crane
- with a forklift truck or pallet truck

The following examples are guidelines; the choice of means and handling modes will depend on the actual installation situation.

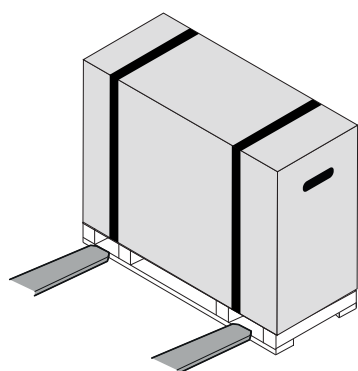
Lifting with a crane

 Use protective elements to avoid damaging the unit.

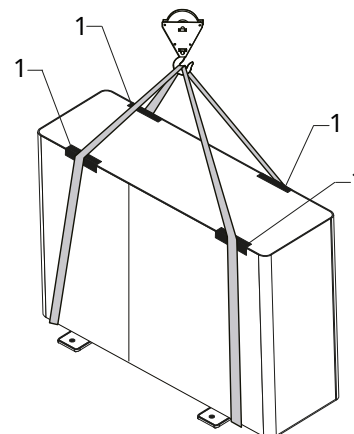


Protection elements

Lifting with a forklift truck



Lifting with a crane without packaging



1 Suitably protect the unit to prevent damage.

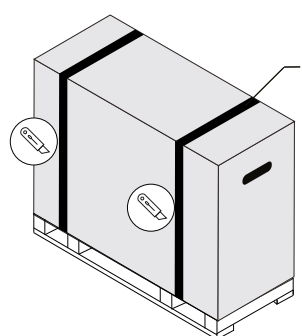
-  When the load is lifted off the ground, stay clear of the area below and around it.
-  Identify critical points during handling (disconnected routes, flights, steps, doors).
-  Before starting the handling, make sure that the unit is stable.
-  The unit may not be tilted more than 15° during transport.

4.5 Removal of the packaging

On reaching the installation site.

Carry out the following procedure:

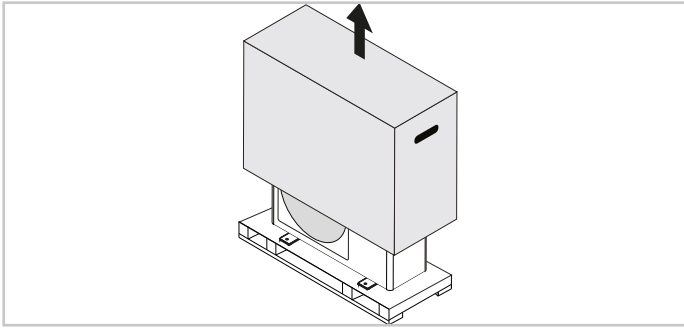
- cut the straps



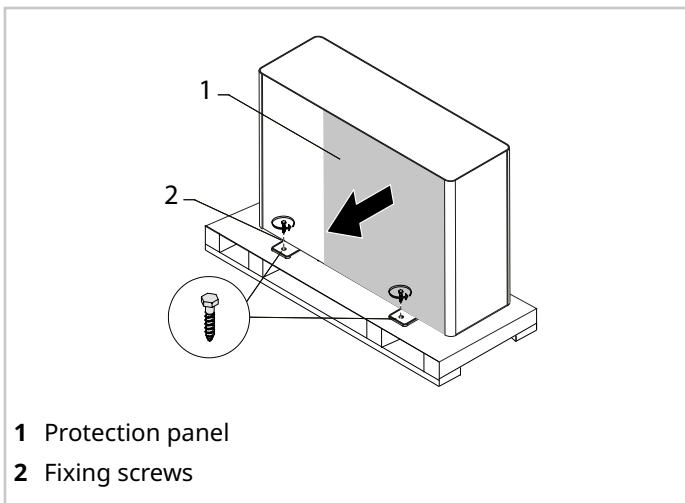
1 Straps

- lift and remove the packaging

Before installation



- remove the screws fixing the unit to the pallet
- remove the unit with suitable means



- 1 Protection panel
- 2 Fixing screws

- ⚠ Be careful not to damage the unit.
- ⚠ Keep the packaging material out of children's reach as it may be dangerous.
- ⚠ Recycle and dispose of the packaging material in conformity with local regulations.
- ⚠ Remove the battery protection panel only after placing the unit in its installation position.

4.6 External unit

4.7 Prerequisites

⚠ This section is intended exclusively for the Installer.

⚠ Refer to the Technical data chapter for details.

⚠ Follow the safety instructions in the "About R-32 refrigerant" chapter on page 7.

⚠ The electrical system and its components must be designed by a qualified technician who must work according to the rules of good practice and national regulations.

⚠ If the unit is installed on a roof or terrace, check its load capacity and the possibility of draining the condensate.

⚠ **Ensure that:**

- the location can be accessed safely
- the clearances are guaranteed
- a suitable place for condensate water discharge is available nearby
- the unit is installed raised off the ground
- the location of the unit does not disturb neighbours
- the support surface or the wall can withstand the weight of the unit
- the floor or wall section does not interfere with power lines or water piping and no load-bearing elements of the construction are compromised.

⚠ **Avoid therefore:**

- places that may be subject to flooding
- installations near bedrooms or windows
- snow accumulations obstructing air intake and exhaust
- obstacles to the airflow
- leaves or other foreign bodies that can obstruct the exchange batteries
- winds that hinder or favour the airflow
- heat or pollution sources close to the unit (chimneys, extractors, etc.)
- stratification (cold air that stagnates at the bottom)
- air circulation between supply and intake
- positioning in shafts and/or openings.

4.7.1 Windbreaks

Installing the unit in particularly windy areas may cause operating problems:

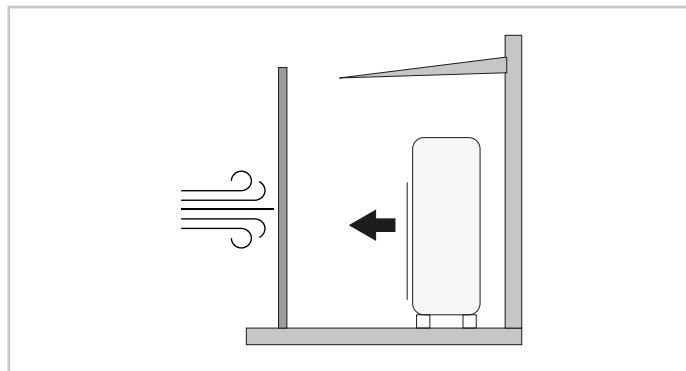
- frontal wind exceeding 5 m/s causes short circuit problems between air supply and return and a decrease in operational capacity
- frequent acceleration of the formation of ice
- Interruption of operation due to high or low pressure alarm.

⚠ **Ensure that:**

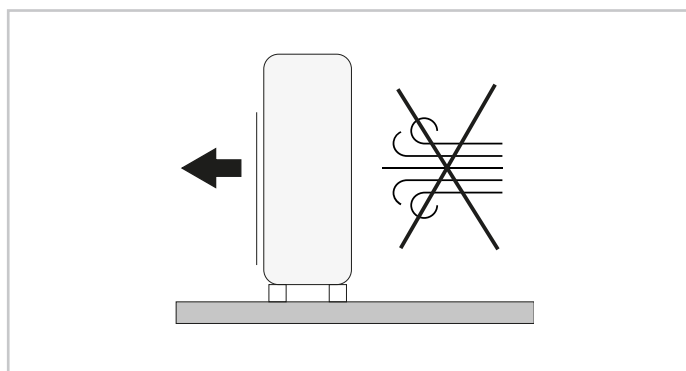
- the unit is positioned so that the air supply is at 90° to the wind direction.

⚠ When a strong and continuous wind blows against the front of the unit, the fan may start to rotate very fast until it breaks.

⚠ Provide windbreaks in front of the unit.

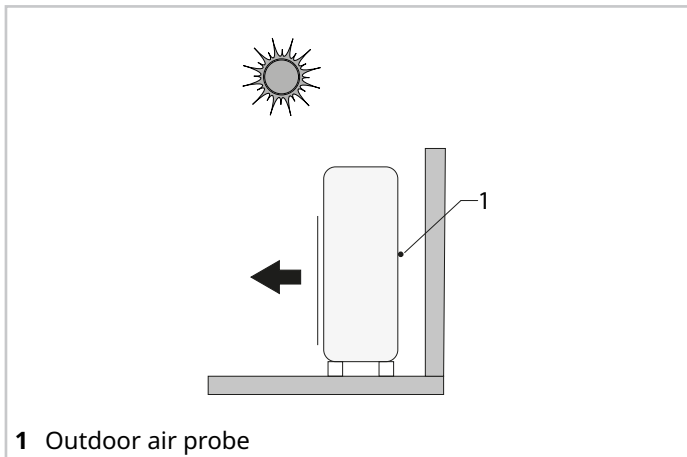


⊖ Do not install the unit in a location where the suction side may be directly exposed to wind.



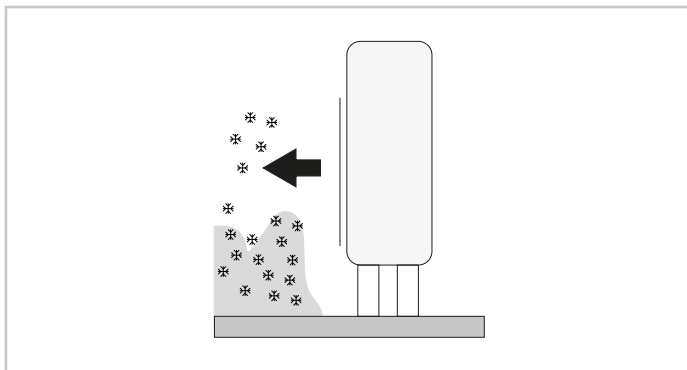
4.7.2 Protection of the external air probe from the sun

- ⚠ The unit has a probe that detects the outdoor temperature and should not be exposed to direct sunlight.
- ⚠ Install the unit in a position sheltered from the sun or provide a canopy.



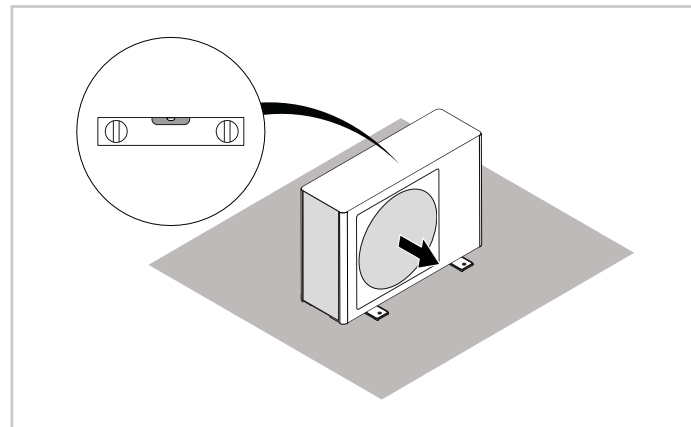
4.7.3 Protection from snow accumulation

- ⚠ In the case of installations in locations subject to heavy snowfall, provide a raised base to prevent snow accumulations from obstructing air intake and exhaust.

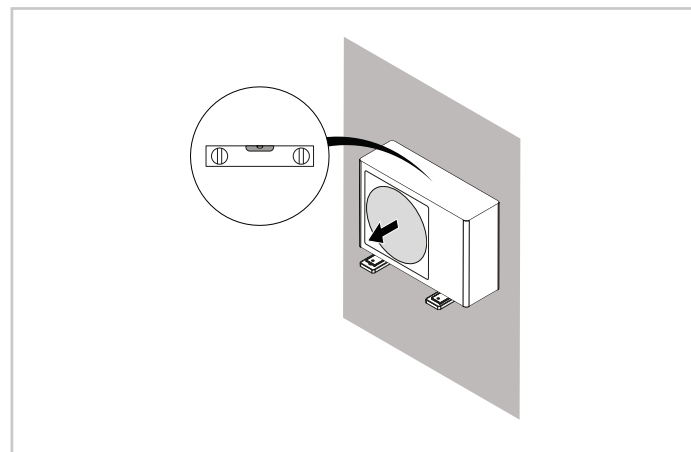


4.8 General diagram

Floor installation

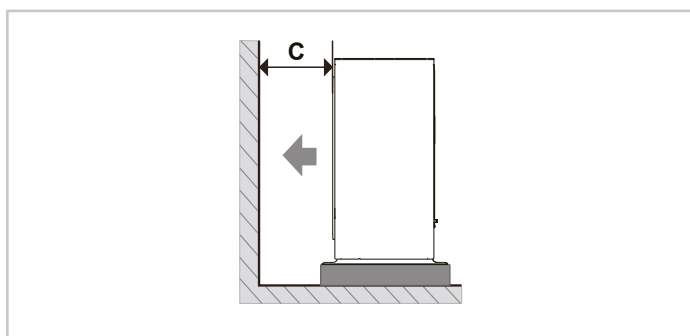
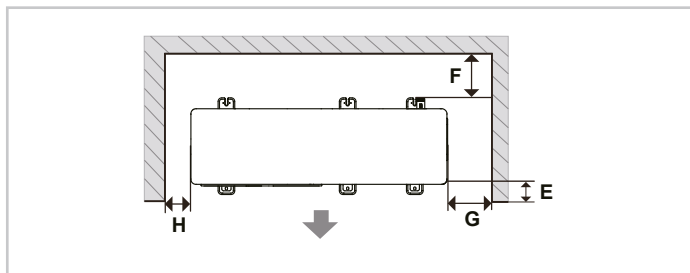
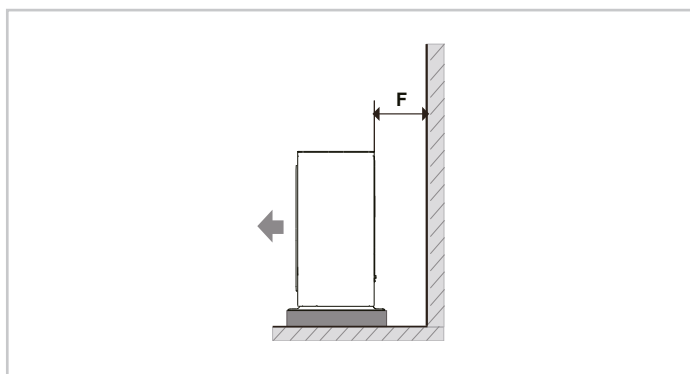
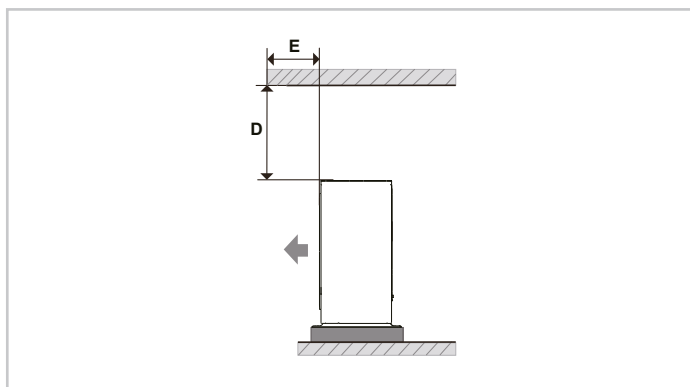
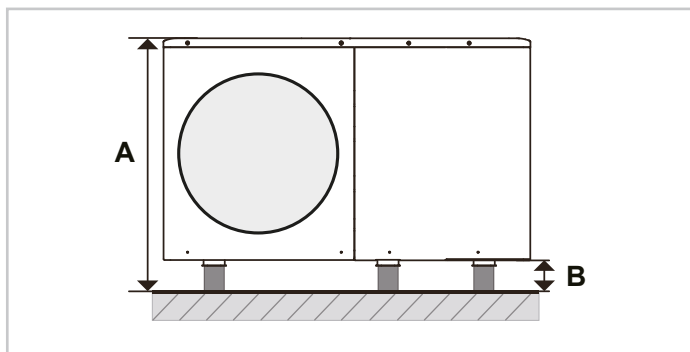


Suspended installation



4.9

4.10 Clearances



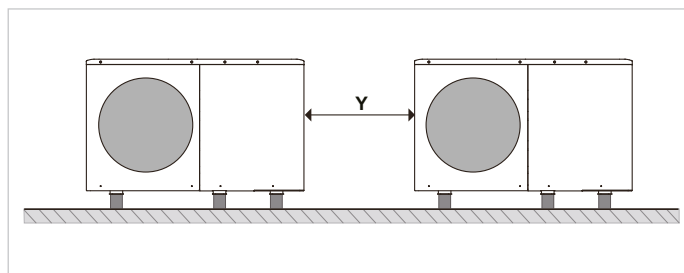
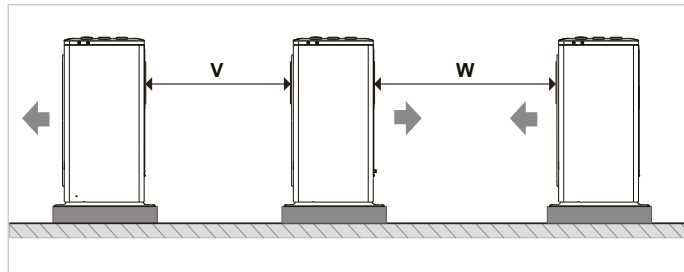
Sizes 2.1-3.1

A	mm	Unit height + B
B	mm	≥100
C	mm	≥1000
D	mm	≥1000
E	mm	≤500
F	mm	≥300
G	mm	≥500
H	mm	≥500

Sizes 4.1-8.1

A	mm	Unit height + B
B	mm	≥100
C	mm	≥2000
D	mm	≥1000
E	mm	≤500
F	mm	≥300
G	mm	≥500
H	mm	≥300

Multiple installation



		Sizes 2.1-3.1	Sizes 4.1-8.1
V	mm	≥500	≥500
W	mm	≥3000	≥3000
Y	mm	≥600	≥600

5. Positioning

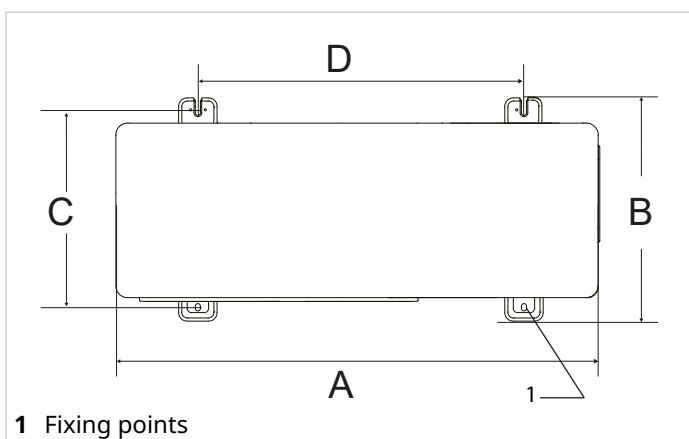
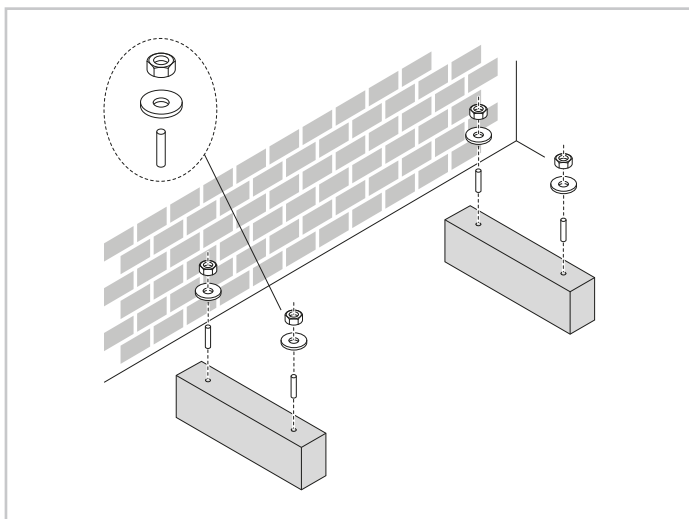
i Anti-vibration mounts (accessories supplied separately) are available to dampen vibrations depending on the type of installation.

i Refer to the accessory's instruction sheet.

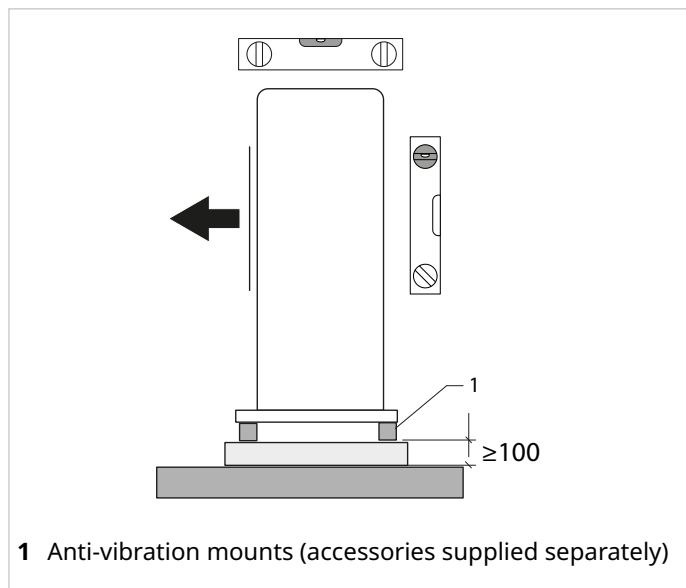
5.10.1 Floor installation

To position the unit

- prepare the concrete base
- use expansion plugs
- secure the unit to the base of support
- check the levelling



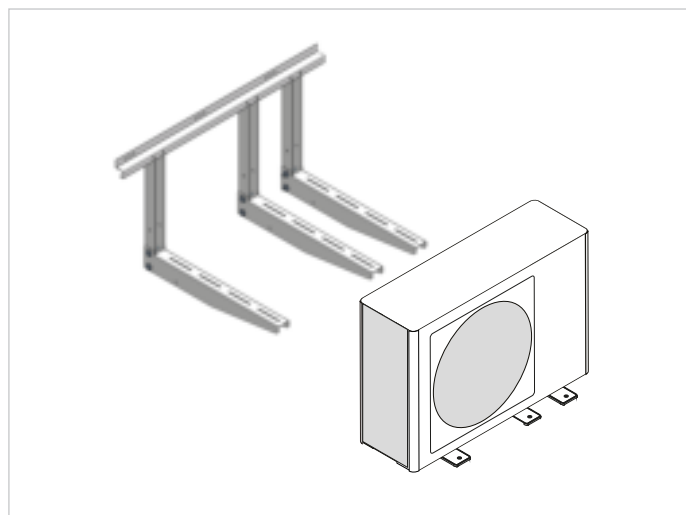
Size	A	B	C	D
2.1-3.1	920	426	375	663
4.1-8.1	1042	523	483	656



5.10.2 Wall-mounted installation

There are two kits available:

- kit containing wall fixing brackets
- kit containing anti-vibration mounts



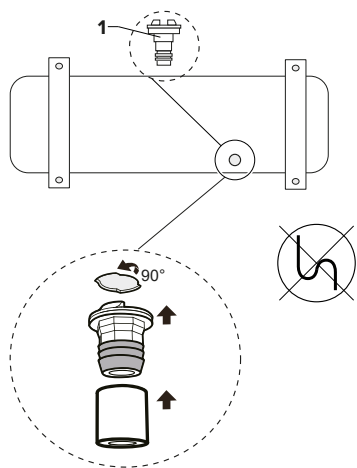
5.1 Condensate drain

During winter operation the unit generates condensate, which must be directed to a suitable place for drainage. Drainage can be channelled (recommended) or free.

5.1.1 Channelled drainage

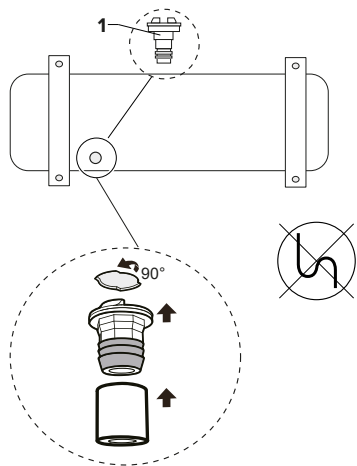
- use the condensation drain fitting supplied with the unit
- put it in the fitting provided at the bottom
- connect a drainpipe
- direct the drainpipe to a suitable drainage point.

Sizes 2.1-3.1



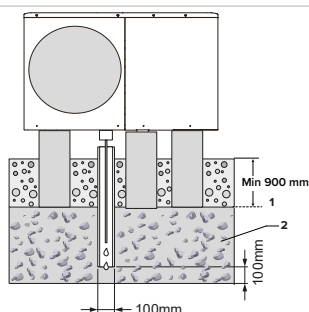
1 Condensation drain connection

Sizes 4.1-8.1



1 Condensation drain connection

! Avoid siphons.



- 1 Frost line
- 2 Layer of gravel or pebbles to help with condensation drainage

! To prevent the water downstream of the drain from free-

zing, install the pipe below the frost line.

- !** If necessary, use heating cables with antifreeze function.
- !** Avoid short radius bends that can cause obstructions.
- !** Avoid possible accidental obstructions during operation.
- !** Avoid spills in places where people pass by.

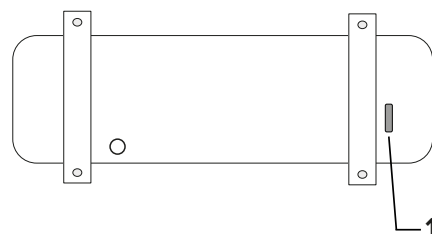
5.1.2 Free drainage

Sizes 4.1-8.1

For installations in frost-free locations, the condensate can be drained without channelling it.

In this case:

- remove the cap from the bottom of the unit



1 Drain hole covered by a rubber cap

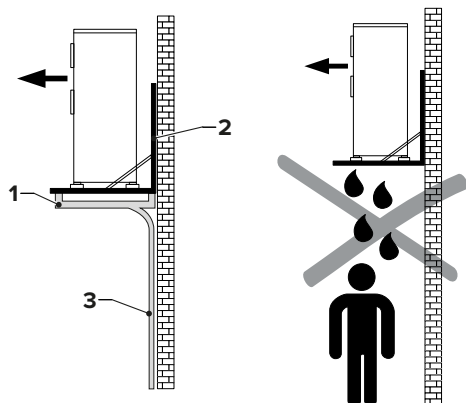
! Avoid spills in places where people pass by.

5.1.3 Positioning on the wall

There are two kits available:

- kit containing wall fixing brackets
- kit containing anti-vibration mounts

i Refer to the accessory's instruction sheet.



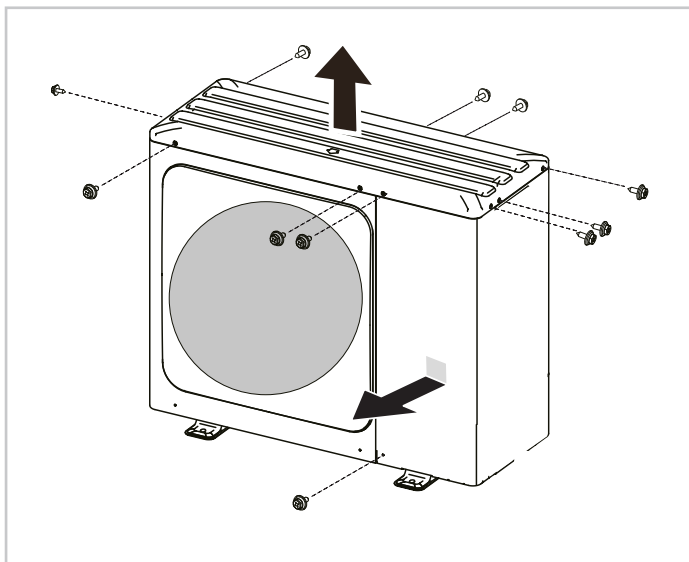
- 1 Drain pan (accessory supplied separately)
- 2 Unit support brackets (accessory supplied separately)
- 3 Condensation drainpipe (to be provided by the customer)

5.2 Access to internal parts

The unit has removable access panels.

To access:

- unscrew the fixing screws
- remove the access panels



To refit:

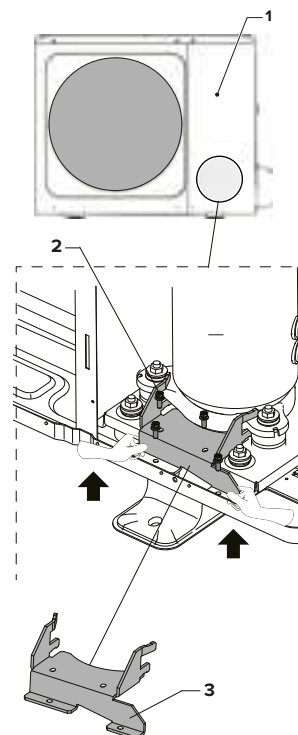
- repeat the operations in reverse order

5.3 Removal of the transport bracket

For sizes **6.1 - 8.1**, remove the transport bracket to avoid stressing the compressor. The bracket must be removed.

To remove the bracket:

- remove the access panel
- unscrew the fixing screws
- remove the carrying bracket



- 1 Access panel
- 2 Fixing screws
- 3 Transport bracket

6. Refrigerant connections

- i** Refer to the indoor unit manual for refrigerant connections

6.1 Prerequisites

- !** This section is intended exclusively for the Installer.
- !** Refer to the Technical data chapter for details.
- !** Follow the safety instructions in the "About R-32 refrigerant" chapter on page 7.
- !** The refrigerant piping and its components must be designed by a qualified technician who must work according to the rules of good practice and national regulations.
- !** This unit is a subset and must be combined with another unit in order to function.
- !** Comply with the PED Directive and the national regulations implementing the PED Directive.
- !** Consider the activation of any additional safety devices.
- !** Check operation of the safety devices.
- !** Indicate on the serial number label the total amount of refrigerant.
- !** Issue the declaration of conformity.
- !** Inform the user of the need to carry out regular checks.
- !** Only use copper piping specific for R32 refrigeration.
- !** An incorrect sizing can cause damage to the compressor or variations in the cooling performance.
- !** Piping should be cleaned and sealed at the ends.
- !** Clean with nitrogen or dry air before connecting the piping to the two units.
- Do not use piping with a different diameter.
- Do not use used refrigerant piping, the flare connection seal is not ensured.
- Do not make connections using hydraulic piping.
- Do not weld with the presence of refrigerant in the piping.

! **Ensure that:**

- the piping route is as straight as possible, limiting the presence of bends, in order to achieve maximum system efficiency

- properly insulate piping
- when installing shut-off devices (solenoid valves, taps, etc.), attention is paid to the possibility of installing refrigerant traps, i.e. closed upstream and downstream areas where the refrigerant cannot expand freely
- in this situation, the expansion of the trapped gas could cause an explosion in the refrigerant piping if the temperature rises (exposure to sun, piping close to heat sources, etc.). Consider installing a pressure relief valve, especially in the liquid piping which is potentially exposed to this risk.

! **Avoid therefore:**

- bends with too small a radius
- crushing piping
- passing through particularly silent environments.

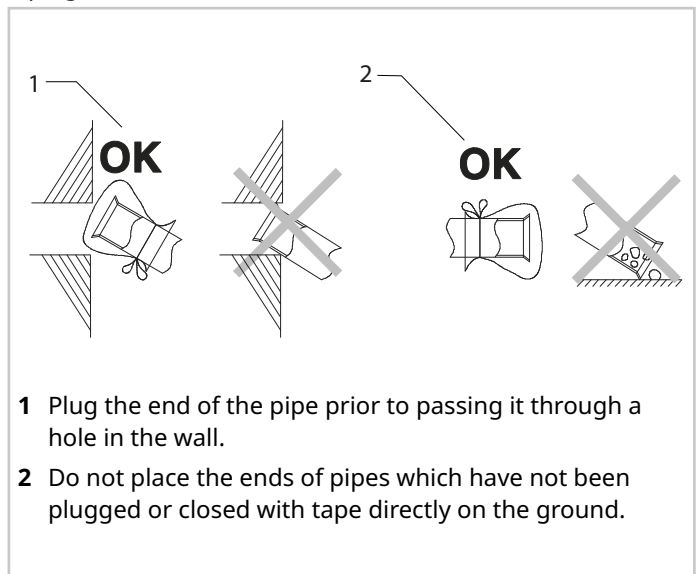
6.2 Connection

The indoor unit and the outdoor unit must be connected by refrigerant piping suitable for the refrigerant used and covered with thermal insulation.

The way the piping is installed can influence the noise level of the system:

- use anchor brackets to support the piping (the weight must not burden the units)
- the brackets must allow for thermal expansion of the piping
- place vibration-damping material between the brackets and piping to prevent the transmission of vibrations

Piping must be clean.

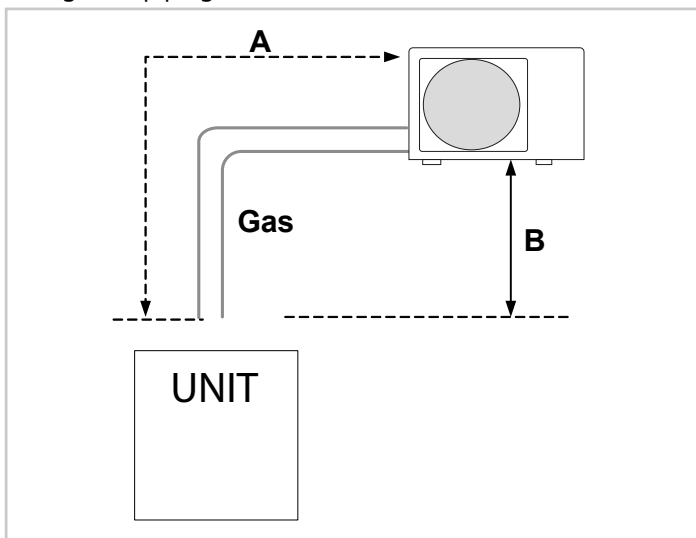


- 1** Plug the end of the pipe prior to passing it through a hole in the wall.
- 2** Do not place the ends of pipes which have not been plugged or closed with tape directly on the ground.

- !** If installation of the piping is not completed by the next day or for a long period of time, braze the ends of the pipes and fill with anhydrous nitrogen through a Schrader valve access fitting to prevent moisture and particle contamination.

6.3 Maximum distances

Refrigerant piping.



Size			2.1 - 8.1
refrigerant piping equivalent length (min - max)	A	m	3 - 30
level difference with outdoor unit above indoor unit	B	m	25
level difference with outdoor unit under indoor unit	B	m	25

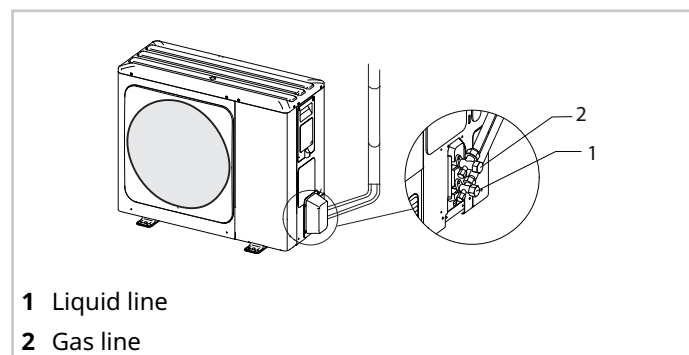
Equivalent length of the lines (metres) = Actual length (metres) + (Q.ty of bends x K)
 Consider K=0.3 m for wide radius 90° bends.
 Consider K=0.5 m for standard 90° elbow bends.

6.4 Piping size

⚠ Before connecting the piping to the two units, clean with nitrogen or dry air.

Piping diameter		
Size	2.1-3.1	4.1-8.1
Outdoor liquid Ø	1/4" (6,3mm)	3/8" (9,5mm)
Outdoor gas Ø	5/8" (15,9mm)	5/8" (15,9mm)
Minimum gas thickness	0,8 mm	
Minimum liquid thickness	0,8 mm	

6.5 Refrigerant fittings

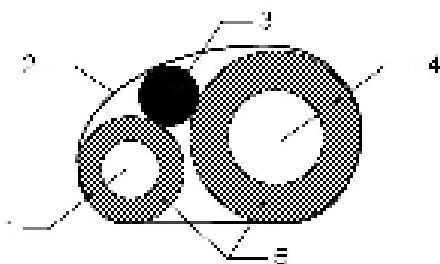


Refrigerant piping size		
Size	2.1-3.1	4.1-8.1
Liquid fitting	1/4"	3/8"
Gas fitting	5/8"	5/8"

Tightening torque		
Outdoor Ø	Tightening torque (N.cm)	Additional tightening torque (N.cm)
1/4"	1500 (153 kgf.cm)	1600 (163 kgf.cm)
3/8"	2500 (255 kgf.cm)	2600 (265 kgf.cm)
5/8"	4500 (459 kgf.cm)	4700 (479 kgf.cm)

6.6 Piping insulation

Use insulation with resistance at $t = 120^{\circ}\text{C}$ and a thickness of at least 13 mm.



- 1 Liquid piping
- 2 Gas piping
- 3 Electric cables
- 4 Insulation
- 5 Sheath - tape

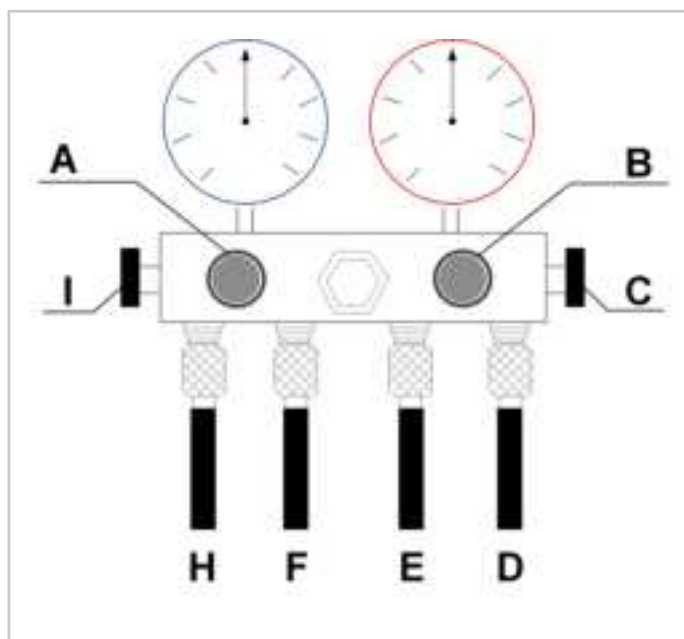
6.7 Indoor unit vacuum operation

The unit is shipped with the refrigerant circuits charged as follows:

External unit charged with refrigerant				
Size		2.1-3.1	4.1-5.1	6.1-8.1
R32	kg	1,50	1,65	1,84
* Total charge	t CO ₂ -eq	1,02	1,11	1,24

i * The refrigerant charge in the outdoor unit is sufficient for up to 15 metres between the 2 units.

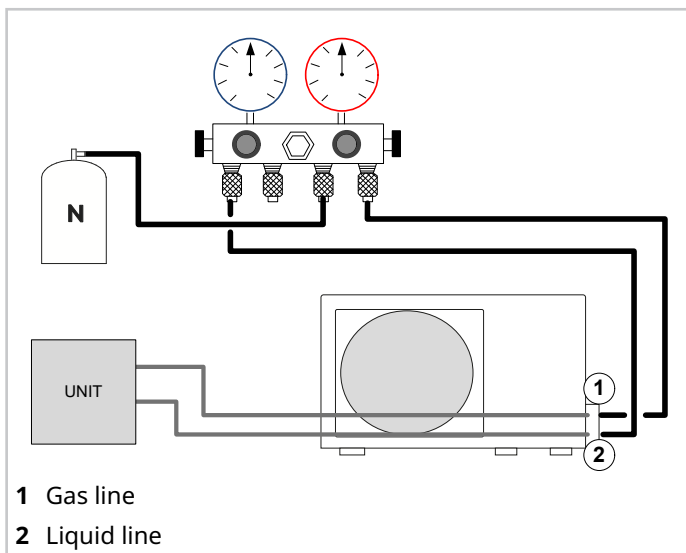
Lengths of piping exceeding 15 m		
Additional top-up for over 15 metres		
Size	2.1-3.1	4.1-8.1
kg/m	0,02	0,038



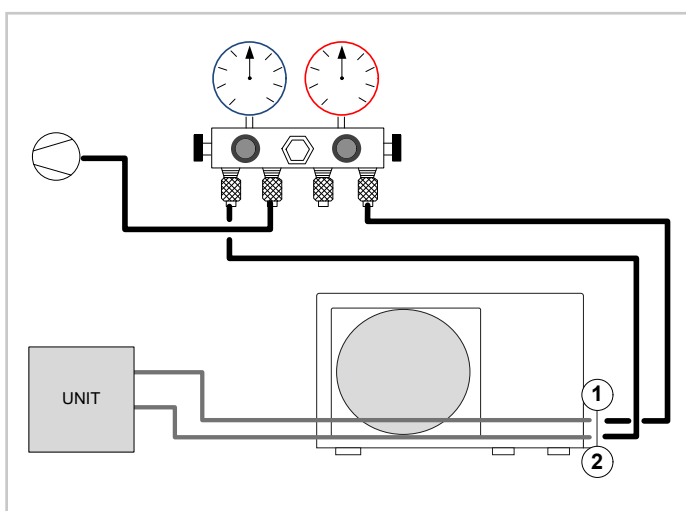
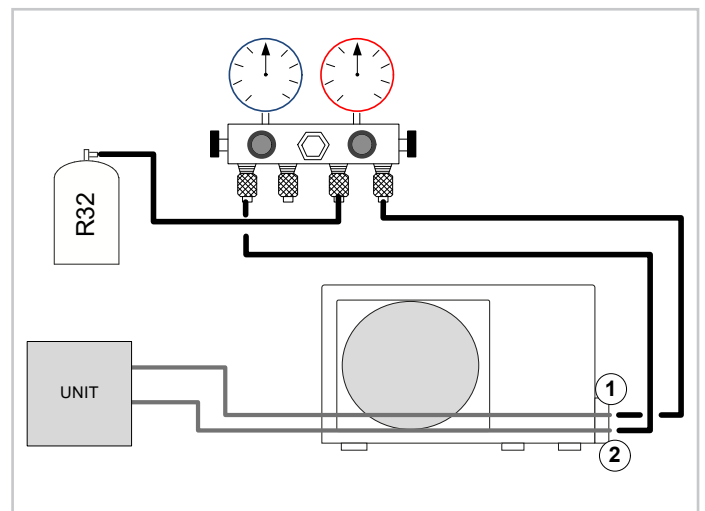
A	VAC vacuum gauge tap
B	REF refrigerant tap
C	HIGH high pressure tap
D	Liquid high pressure pipe
E	Refrigerant pipe
F	Pipe to vacuum pump
H	Low pressure pipe
I	LOW low pressure tap

After having completed the refrigerant connections, check the tightness of the refrigerant circuit:

- ▶ keep outdoor unit taps 1 and 2 closed
- ▶ connect pipes D and H to taps 1 and 2
- ▶ close taps A, B, C and I
- ▶ connect E to the nitrogen cylinder
- ▶ open taps C and I
- ▶ perform the leak test
 - **Method 1:** open tap B, pressurise the circuit up to 45 bar (see serial number label) and wait a few hours
 - **Method 2:** open tap B, pressurise the circuit up to 65 bar (as per UNI-EN 378-2 2009 :PS x 1.43)
- ▶ spray taps and piping with a leak detector spray and check for bubbles (gas leaks)
- ▶ if everything is OK, proceed
- ▶ discharge the nitrogen from the unit.



- ▶ connect F to the vacuum pump
- ▶ open taps A, C and I
- ▶ start the vacuum pump
- ▶ in optimal conditions, 15-60 minutes are required to create the vacuum. If the moisture content in the piping is high or the temperature is $< 20^{\circ}\text{C}$, it can take a few hours
- ▶ reach the lowest value (approximately 1 mbar = 100 Pa.)
- ▶ close tap A
- ▶ turn off the pump
- ▶ put the red indicator of the vacuum gauge on top of the black one
- ▶ check the vacuum gauge to ensure that the pressure does not rise for a few minutes
- ▶ if it rises, repeat the procedure
- ▶ if everything is OK, proceed



- ▶ connect E to the refrigerant cylinder
- ▶ open tap B to charge the refrigerant (see the Additional energy exchanger charge table)
- ▶ close taps B, C and I
- ▶ disconnect pipes D and H and open taps 1 and 2

7. Electrical connections

 For details, refer to the indoor unit manual.

7.1 Prerequisites

 This section is intended exclusively for the Installer.

 The electrical system and its components must be designed by a qualified technician who must work according to the rules of good practice and national regulations.

 All electrical operations should be performed by trained personnel having the necessary requirements by the regulations in force and being informed about the risks relevant to these activities.

 Operate in compliance with safety regulations in force.

 The power cables and the protection cable section must be defined in accordance with the characteristics of the protections adopted.

 The protection devices of the unit power line must be able to stop the presumed short circuit current, whose value must be determined in function of system features.

 Refer to the unit electrical diagram (the number of the diagram is shown on the serial number label).

 verify that the network has characteristics conforming to the data shown on the serial number label.

 Before starting work, verify that the sectioning device at the start of the unit power line is open, blocked and equipped with cartel warning.

 The supply line must be disconnectable from the rest of the building's power mains with an all-pole magnetothermal circuit breaker with separation of contacts on all poles, to be implemented in accordance with current laws and regulations.

 The protection must be sized in accordance with the electrical data declared by the manufacturer.

 Disconnect the power supply before making any connection.

 Do not crush cable bundles and prevent them from coming into contact with piping and any sharp edges.

 Primarily you have to realize the earthing connection.

 Incorrect grounding may cause electric shocks.

 All external high voltage loads, if connected to a metal fitting or grounding clip, must be earthed.

 The current required for each external load must be less than 0.2 A. If the current required for a single load is greater than 0.2 A, insert a contactor for control.

 Install an earth leakage breaker (30 mA).

 Failure to observe this precaution may result in electric shocks.

 Power and signal cables should be routed as separately as possible to avoid any interference.

 Keep the unit's controller wiring as far away from hot surfaces as possible. It is advisable to use cables with cross-linked polyvinyl chloride sheath.

 For the electrical connection, use a cable of sufficient length to cover the entire distance without any connection work. Do not use extension cords. Do not apply other loads on the power supply.

 If the power cable is damaged, it must be replaced by qualified personnel and in accordance with current national regulations.

 The manufacturer is not liable for any damage caused by failure to install a grounding system or failure to comply with the diagrams.

 Check the voltage values which must be within the limits: 220-240V +/- 10% and 380-415V +/- 6%.

 Before power the unit, make sure that all the protections that were removed during the electrical connection work have been restored.

 It is forbidden to connect the earth wire to gas or water pipes, lightning rods or telephone ground.

7.2 Cable inlet

To access the panel, see the “Access to internal parts” section

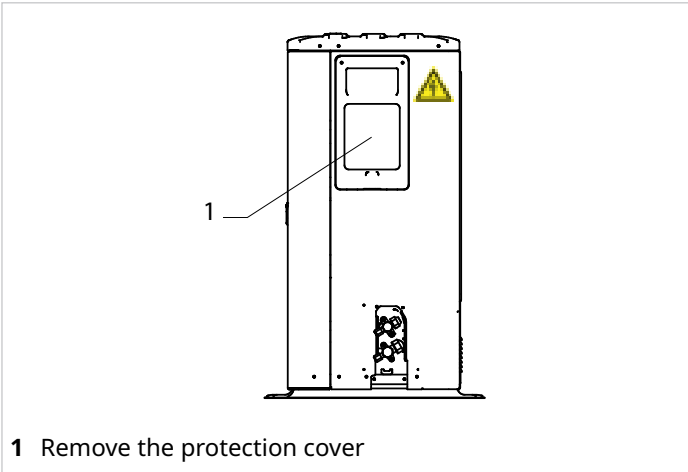
⚠ Before removing the protection panel from the electrical panel, disconnect the power supply to the indoor and outdoor units and to all the other electrically powered components.

⚠ Connect as shown in the wiring diagrams.

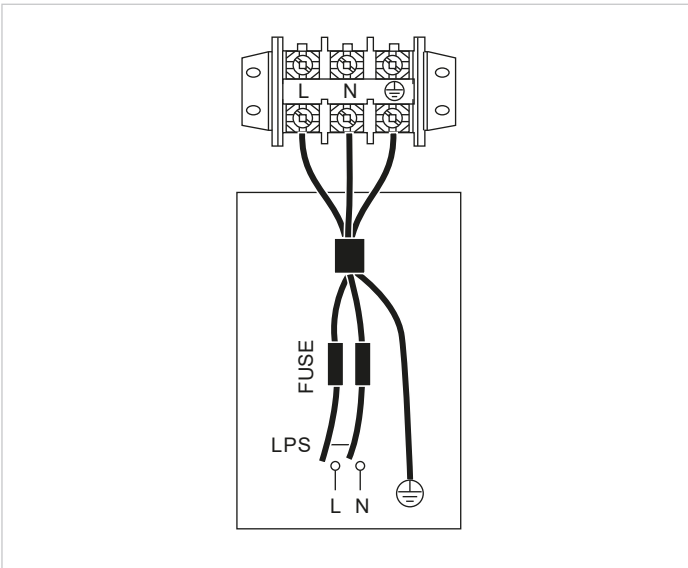
7.3 Connecting the power supply

⚠ Ensure that:

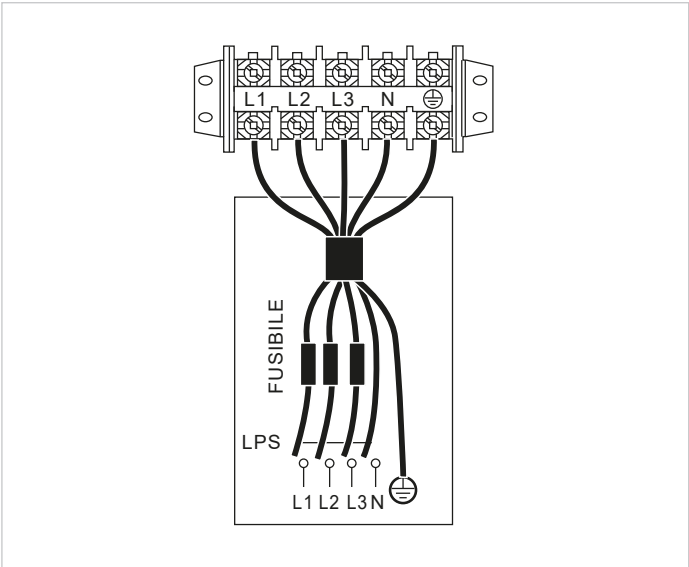
- no cables of different cross-sections are connected to the same power supply terminal block (loosening of the power supply wires could cause overheating)
- terminal block screws are not over-tightened
- an earth leakage breaker and a fuse or magnetothermic circuit breaker are connected to the supply line.



Single-phase power supply



Three-phase power supply



7.3.1 Electric cable sizes

7.3.1.1 Standard Units

Size	1ph			3ph
	2.1 - 3.1	4.1 - 5.1	6.1 - 8.1	6.1 - 8.1
Maximum overcurrent protection (MOP)	18	19	30	14
Cable cross-section (mm²)	4	4	6	2.5

Tightening torques

	Tightening torque (N•m)
M4 (power terminal, electric control board terminal)	from 1.2 to 1.4
M4 (earthed)	from 1.2 to 1.4

i The values given are maximum values. Refer to the electrical data for the exact values.

i For the sizing values of the external protections, refer to the rated electrical data (bulletin, labels).

⚠ The earth leakage breaker must be a 30 mA (<0.1 s) fast tripping type.

Connection procedure:

- connect the cables to the appropriate terminals as shown in the diagram
- secure the cables with cable clamps.

8. Starting up the system

 Refer to the combined indoor unit manual for:

- Preliminary checks
- Start-up
- Maintenance
- Technical information

9. Decommissioning

9.1 Disconnection



Awaiting decommissioning and disposal, the unit can also be stored outdoors, as bad weather and rapid changes in temperature do not harm the environment provided that the electric, cooling and hydraulic circuits of the unit are intact and closed.



9.1.1 WEEE INFORMATION

The manufacturer is registered on the EEE National Register, in compliance with implementation of Directive 2012/19/ EU and relevant national regulations on waste electrical and electronic equipment.

This Directive requires electrical and electronic equipment to be disposed of properly.

Equipment bearing the crossed-out wheeled bin mark must be disposed of separately at the end of its life cycle to prevent damage to human health and to the environment. Electrical and electronic equipment must be disposed of together with all of its parts.

To dispose of "household" electrical and electronic equipment, the manufacturer recommends you contact an authorised dealer or an authorised ecological area.

"Professional" electrical and electronic equipment must be disposed of by authorised personnel through established waste disposal authorities around the country.

In this regard, here is the definition of household WEEE and professional WEEE:

WEEE from private households: WEEE originating from private households and WEEE which comes from commercial, industrial, institutional and other sources which, because of its nature and quantity, is similar to that from private households. Subject to the nature and quantity, where the waste from EEE was likely to have been by both a private household and users of other than private households, it will be classed as private household WEEE;

Professional WEEE: all WEEE which comes from users other than private households.

This equipment may contain:

- refrigerant gas, the entire contents of which must be recovered in suitable containers by specialised personnel with the necessary qualifications;
- lubrication oil contained in compressors and in the cooling circuit to be collected;
- mixtures with antifreeze in the water circuit, the contents of which are to be collected;
- mechanical and electrical parts to be separated and disposed of as authorised.

When machine components to be replaced for maintenance purposes are removed or when the entire unit reaches the end of its life and needs to be removed from the installation, waste should be separated by its nature and disposed of by authorised personnel at existing collection centres.

9.2 Residual risks

Refer to the indoor unit manual.



DECLARATION OF CONFORMITY EU

DICHIARAZIONE DI CONFORMITÀ UE
KONFORMITÄTSEKTLÄRUNG EU
DECLARATION DE CONFORMITE EU
DECLARACIÓN DE CONFORMIDAD EU

WE DECLARE UNDER OUR SOLE RESPONSIBILITY THAT THE MACHINE

DICHIARIAMO SOTTO LA NOSTRA SOLA RESPONSABILITÀ CHE LA MACCHINA
WIR ERKLÄREN EIGENVERANTWORTLICH, DASS DIE MASCHINE
NOUS DÉCLARONS SOUS NOTRE SEULE RESPONSABILITÉ QUE LA MACHINE
EL FABRICANTE DECLARA BAJO SU EXCLUSIVA RESPONSABILIDAD QUE LA MÁQUINA

CATEGORY	CONDENSING UNITS - Heat pump
CATEGORIA	MOTOCONDENSANTI - Pompa di calore
KATEGORIE	VERFLÜSSIGUNGSEINHEITEN - Wärmepumpe
CATEGORIE	GROUPES DE CONDENSATION - Pompe à chaleur
CATEGORIA	MOTOCONDENSADORAS - Bomba de calor

TYPE / TIPO / TYP / TYPE / TIPO

MODEL
MISAN-YEE 1 S 2.1
MISAN-YEE 1 S 3.1
MISAN-YEE 1 S 4.1
MISAN-YEE 1 S 5.1

- **COMPLIES WITH THE FOLLOWING EEC DIRECTIVES, INCLUDING THE MOST RECENT AMENDMENTS, AND THE RELEVANT NATIONAL HARMONISATION LEGISLATION CURRENTLY IN FORCE:**
- RISULTA IN CONFORMITÀ CON QUANTO PREVISTO DALLE SEGUENTI DIRETTIVE CEE, COMPRESE LE ULTIME MODIFICHE, E CON LA RELATIVA LEGISLAZIONE NAZIONALE DI RECEPIMENTO:
- DEN IN DEN FOLGENDEN EWG-RICHTLINIEN VORGESEHENEN VORSCHRIFTEN, EINSCHLIEßLICH DER LETZTEN ÄNDERUNGEN, SOWIE DEN ANGEWANDTEN LANDESGESETZEN ENTSPRICHT:
- EST CONFORME AUX DIRECTIVES CEE SUIVANTES, Y COMPRIS LES DERNIÈRES MODIFICATIONS, ET À LA LÉGISLATION NATIONALE D'ACCUEIL CORRESPONDANTE:
- ES CONFORME A LAS SIGUIENTES DIRECTIVAS CEE, INCLUIDAS LAS ÚLTIMAS MODIFICACIONES, Y A LA RELATIVA LEGISLACIÓN NACIONAL DE RECEPCIÓN:

- ☒ **2014/35/EC** **low voltage directive** / direttiva bassa tensione
Bestimmungen der Niederspannungsrichtlinie / directive basse tension
directiva de baja tensión
- ☒ **2014/30/UE** **electromagnetic compatibility** / compatibilità elettromagnetica
Elektromagnetische Verträglichkeit / compatibilité électromagnétique / compatibilidad electromagnética
- ☒ **2009/125/CE** **Ecodesign** / Progettazione ecocompatibile / Ecodesign / Éco-conception / Ecodiseño
- ☒ **2011/65/UE** **2015/863/UE RoHS**

-Unit manufactured and tested according to the followings Standards: EN 55014-1 :2017 EN 55014-2 :2015 EN 61000-3-2 :2014
-Unità costruita e collaudata in conformità alle seguenti Normative: EN 61000-3-3 :2013 EN 62233 :2008
-Unité construite et testée en conformité avec les Réglementations suivantes EN 60335-2-40 :2003+A11 :2004+A12 :2005+A1 :2006+A2 :2009+A13 :2012
-Unidad construida y probada de acuerdo con las siguientes Normativas EN 60335-1 :2012+A11 :2014+A13 :2017+A1 :2019+A14 :2019
-Gebaut und geprüftes Gerät nach folgenden Normen EN 62321-1 :2013 EN 62321-2 :2014 EN 62321-3-1 :2014 EN 62321-4 :2014
EN 62321-5 :2014 EN 62321-6 :2015 EN 62321-7-1 :2015
EN 62321-7-2 :2017 EN 62321-8 :2017 EN 378-2

-Responsible to constitute the technical file is the company n°00708410253 and registered at the Chamber of Commerce of Belluno Italy
-Responsabile a costituire il fascicolo tecnico è la società n°00708410253 registrata presso la Camera di Commercio di Belluno Italia
-Verantwortliche für die technischen Unterlagen zusammenstellen n°00708410253 ist das Unternehmen bei der Handelskammer von Belluno Italien registriert
-Responsable pour compiler le dossier technique est la société n°00708410253 enregistrée à la Chambre de Commerce de Belluno en Italie
-Encargado de elaborar el expediente técnico es la empresa n°00708410253 registrada en la Cámara de Comercio de Belluno Italia

FELTRE, 26/03/2021
NAME / NOME / VORNAME / PRÉNOM / NOMBRE
SURNAME / COGNOME / ZUNAME / NOM / APELLIDOS
COMPANY POSITION / POSIZIONE / BETRIEBSPOSITION / FONCTION / CARGO LEGALE RAPPRESENTANTE

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