

Installation manual
(Translation of original
language)

EN



N421179A - Rev. 00 - 01/2025

Outdoor unit

OKKI

First of all, we would like to thank you for having chosen a device of our production.

We are sure you will be happy with it because it represents the state of the art in the technology of home air conditioning.

By following the suggestions contained in this manual, the product you have purchased will provide trouble free operation, giving you optimum room temperatures with minimum energy costs.

INNOVA S.r.l.

Conformity

This unit complies with the European directives:

- Low Voltage Directive 2014/35/EU by transposition of the following technical standards: EN 60335-1:2012 + EN 60335-2-40:2003
- EMC Directive 2014/30/EU, through transposition of the technical standards: EN 55014-1:2017 + EN 55014-2:2015 + EN 61000-3-2:2014 + EN 61000-3-3:2013
- RoHS2 Directive 2011/65/EU2 on the restriction of the use of hazardous substances in electrical and electronic equipment
- Directive 2012/19/EC (WEEE) on waste electrical and electronic equipment
- F-Gas Regulation 2014/517/EU on fluorinated greenhouse gases
- European ErP Ecodesign Regulation No. 1254/2014 And subsequent amendments.

Markings







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1. GENERAL INFORMATION

1.1 About the manual





This manual was written to provide all the explanations for the correct management of the device.

-  This instruction manual forms an integral part of the device and therefore must be carefully preserved and must ALWAYS travel with it, even if you transfer the device to another owner or relocate it to other premises. If the manual gets damaged or lost, download a copy from the website.
-  Read this manual carefully before proceeding with any operation and follow the instructions in the individual chapters.
-  The Manufacturer accepts no liability for damages to persons or property caused by failure to follow the instructions in this manual.
-  This document is restricted in use to the terms of the law and may not be copied or transferred to third parties without the express authorisation of the Manufacturer.

1.1.1 Editorial pictograms

The pictograms in the next chapter provide the necessary information for correct and safe use of the machine in a rapid and unmistakable way.

Related to security

-  **High risk warning (bold text)**
 - The operation described above presents a risk of serious physical injury, fatality, major damage to the device and/or to the environment if not carried out in compliance with safety regulations.
-  Low risk warning (plain text)
 - The operation described above presents a risk of minor physical injury or minor damage to the device and/or to the environment if not carried out in compliance with safety regulations.
-  Prohibition (plain text)
 - Refers to prohibited actions.
-  **Important information (bold text)**
 - This indicates important information that must be taken into account during the operations.



In the texts

- ▶ procedures
- lists

In the control panels

- ▶ actions required
- Expected responses following an action.*

In the figures

- 1 The numbers indicate the individual components.
- A The capital letters indicate component assemblies.
-  The white numbers in black marks indicate a series of actions to be carried out in sequence.
-  The black letter in white identifies an image when there are several images in the same figure.

1.1.2 Pictograms on the product

Symbols are used in some parts of the device:

Related to security



Read instruction manual

Read the instructions carefully before performing any work on the device.



Instruction manual

Read the information available in the technical documentation of the device.



Caution: electrical danger

- The concerned personnel is informed to the presence of electricity and the risk of suffering an electric shock.

Related to refrigerant R32



Caution: low flammability material

- R32 refrigerant gas is mildly flammable and odourless. Avoid proximity to sources of ignition in continuous operation (open flames, gas appliances, electric stoves, lighted cigarettes, etc.).



Instructions for the Authorised Service Centre

- The Authorised Service Centre must read the instructions carefully before performing any work on the appliance.

1.1.3 Recipients

User

Non-expert person capable of operating the product in safe conditions for people, for the product itself and the environment, interpreting an elementary diagnostic of faults and abnormal operating conditions, carrying out simple adjustment, checking and maintenance operations.

Installer

Expert person qualified to position and connect (hydraulically, electrically, etc.) the unit to the plant; this person is

responsible for handling and correct installation according to the instructions provided in this manual and the national standards currently in force.

To work on the refrigeration circuit, the installer must comply with the provisions of Regulation 303/2008/EC which defines, in accordance with Directive 842/2006/EC, the requirements for companies and personnel with regard to fixed refrigeration, air conditioning and heat pump equipment containing certain fluorinated greenhouse gases (F-gas licence).

Authorised Service Centre

Expert and qualified person authorised directly by the manufacturer to carry out all routine and supplementary maintenance operations, as well as every adjustment, check, repair and replacement of parts necessary during the life of the unit itself.

Service personnel must comply with the provisions of Regulation 303/2008/EC which defines, in accordance with Directive 842/2006/EC, the requirements for companies and personnel with regard to fixed refrigeration, air conditioning and heat pump equipment containing certain fluorinated greenhouse gases (F-gas licence).

1.1.4 Manual organisation

The manual is divided into sections each dedicated to one or more target groups.

Coding

It addresses all recipients.

It contains the list of products and/or accessories referred to in the manual.

General information

It addresses all recipients.

It contains general information and important warnings that should be known before installing and using the device.

Product presentation

It addresses all recipients.

It contains the information to identify the product, its components, compatible accessories and destination of use.

Installation

It is addressed exclusively to the installer.

It contains specific warnings and all the information necessary for positioning, mounting and connecting the appliance.

Commissioning, maintenance and troubleshooting

They are addressed exclusively to the Authorised Service Centre.

It contains specific warnings useful information for the most common commissioning and routine maintenance.

Technical information

It addresses all recipients.

It contains detailed technical information about the appliance.

1.2 General warnings

- ⚠ Specific warnings are given in each chapter of the document and must be read before starting operations.
- ⚠ All personnel involved must be aware of the operations and dangers that may arise when beginning all unit installation operations.
- ⚠ Installation performed outside the warnings provided in this manual and use of the appliance outside the prescribed temperature limits will invalidate the warranty.
- ⚠ The installation and maintenance of climate control equipment could be dangerous because there is pressurised refrigerant gas and live electrical components inside the appliances. The installation, initial start-up and subsequent maintenance phases must be carried out exclusively by authorised and qualified personnel (see first start-up request form enclosed with the appliance).
- ⚠ Any contractual or extra-contractual liability for damage caused to persons, animals or property, due to installation adjustment and maintenance errors, or improper use, is excluded. All uses not expressly indicated in this manual are not permitted.
- ⚠ Only suitably qualified installers are authorised to install the device. After having completed installation, the installer will issue a declaration of conformity to the plant manager, as required by the applicable standards and the guidelines provided by contractor's instruction manual supplied with the device.
- ⚠ First start-up and repair or maintenance operations must be carried out by the Technical Assistance Centre or by qualified personnel following the provisions of this manual.
- ⚠ A list of the authorized Technical Service Centers can be found on the website, in the service section.
- ⚠ Do not modify or tamper with the appliance as this can lead to dangerous situations.
- ⚠ Use suitable personal protective clothing and equipment during installation and/or maintenance operations. The Manufacturer is not liable for the non-observance of the current safety and accident prevention regulations.
- ⚠ In the event of liquid or oil leaks, set the main switch of the plant to "OFF" and isolate water taps where applicable. Call the Authorised Service Centre or professionally qualified personnel as soon as possible and do not work on the appliance yourself.
- ⚠ In case of replacement of parts, use only original parts.
- ⚠ The Manufacturer reserves the right to make changes to its models at any time to improve its product, without prejudice to the essential characteristics described in this manual. The manufacturer is not obliged to add such modifications to machines previously manufactured, already delivered or under construction.

⚠ The appliance may be used by children not less than 8 years of age and by persons with reduced physical, sensory or mental capabilities, or lacking the necessary experience or knowledge, provided that they are supervised or after they have received instructions regarding the safe use of the appliance and understanding of the dangers inherent in it. Children should not play with the appliance. Cleaning and maintenance intended to be carried out by the user must not be done by children without supervision. Translated with DeepL.com (free version)

1.2.1 Specific warnings for R32

ⓘ **This document contains only some of the warnings related to the refrigerant R32. For more comprehensive information, carefully read the safety data sheet available from the dealer.**

⚠ Each chapter contains specific warnings for the operations it describes. These warnings must be read before starting activities.

⚠ All precautions concerning the treatment of the refrigerant must be observed following the regulations in force.

⚠ The unit uses environmentally friendly R32 refrigerant gas, with a Global Warming Potential (GWP) = 675. Do not release R32 gas into the atmosphere.

⚠ R32 refrigerant gas is mildly flammable and odourless.

⚠ Do not place flammable objects (spray cans) within 1 metre of the air outlet.

⚠ Avoid proximity to sources of ignition in continuous operation (open flames, gas appliances, electric stoves, lighted cigarettes, etc.).

⚠ If refrigerant gas escapes, ventilate the room abundantly and leave. Call the Authorised Service Centre or professionally qualified personnel as soon as possible and do not intervene on the appliance yourself.

1.3 Basic rules of security

Please keep in mind that the use of products powered by electricity and water call for operators to comply with certain essential safety rules:

- ⊖ The use of the appliance to children and unassisted disabled persons is prohibited.
- ⊖ It is forbidden to touch the device with wet or damp body parts.
- ⊖ It is forbidden to carry out any operation before disconnecting the appliance from the power supply by setting the plant main switch to "OFF".
- ⊖ It is forbidden to modify the safety or adjustment devices, or adjust without authorisation and indications of the Manufacturer.
- ⊖ It is forbidden to pull, unplug or twist the device's electric cables, even if it is disconnected from the mains.
- ⊖ It is forbidden to introduce objects and substances through the air inlet and outlet grilles.

⊖ It is forbidden to open the access doors of the device's internal parts without first having set main switch of the system to "OFF".

⊖ It is forbidden to incorrectly dispose of the packaging, or leave in the reach of children, which may become a source of danger.

1.3.1 Specific safety rules for R32

This document contains only some of the safety rules related to refrigerant R32. For more comprehensive information, carefully read the safety data sheet available from the dealer.

- ⊖ Smoking in the vicinity of the appliance is prohibited.
- ⊖ Using a mobile phone near the appliance is prohibited.
- ⊖ Using leak detectors with halogen lamps is prohibited.

1.4 Disposal



The symbol on the product or packaging indicates that the product must not be treated as normal household waste, but must be taken to the appropriate collection point for recycling of used electrical and electronic equipment and batteries.

Proper disposal of this product avoids harm to humans and the environment and promotes the reuse of valuable raw materials.

For more detailed information about the recycling of this product, contact your local authority, your household waste disposal service or the shop where you purchased the product.

Illegal disposal of the product by the user involves the application of the administrative sanctions provided for by the regulations in force.

This provision is valid in the EU Member States.

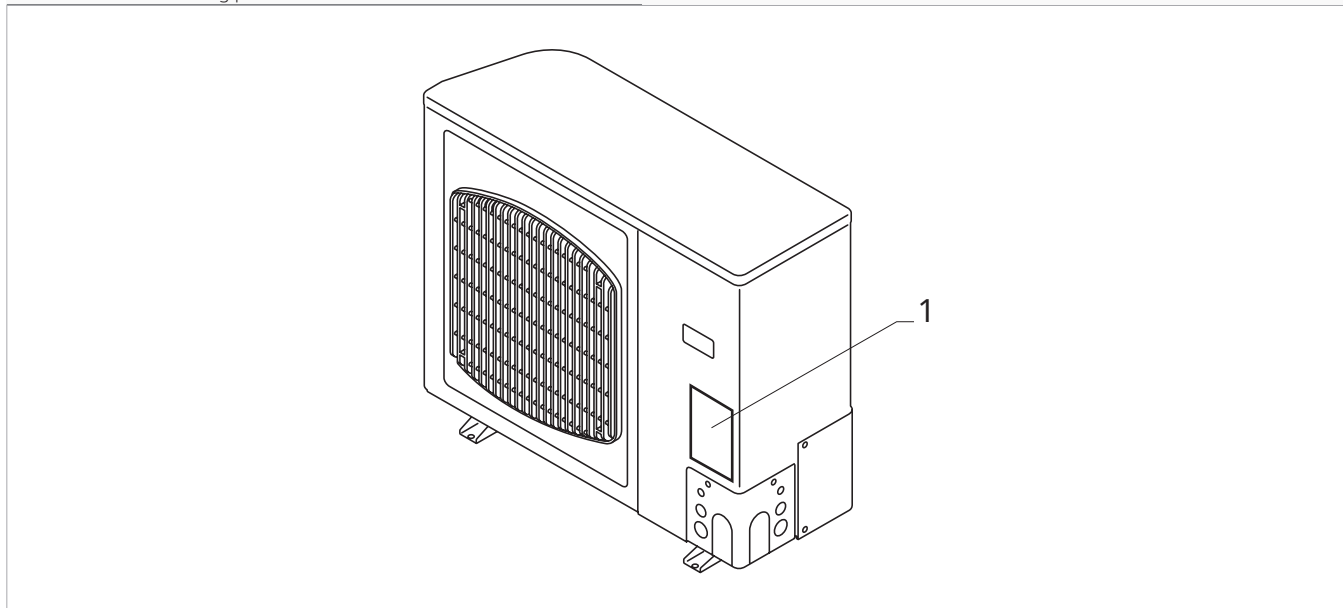
- ⚠ Avoid disassembling the unit yourself.
- ⚠ This unit contains fluorinated greenhouse gases covered by the Kyoto Protocol. Maintenance and disposal operations must be carried out by qualified personnel only.
- ⚠ **Contact an Authorised Service Centre to disassemble the appliance.**

2. PRODUCT PRESENTATION

2.1 Identification

The appliance can be identified by the rating plate:

1. Technical rating plate



Technical rating plate

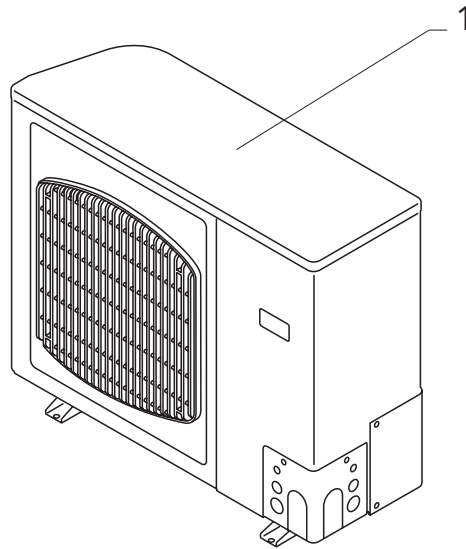
This shows the technical and performance specifications of the appliance.

⚠ According to EU Regulation No. 517/2014 concerning certain fluorinated greenhouse gases, it is mandatory to indicate the total amount of refrigerant present in the installed system. This information can be found on the rating plate of the unit.

⚠ Tampering with, removal of, or lack of identification plates will not allow for the safe identification of the product by its serial number and therefore invalidates the warranty.

2.2 Destination of use

These units, in combination with internal units, were made for air conditioning/heating and should be intended for this use consistent with their performance characteristics.

1. Model 15 - 30

⊖ It is forbidden to use the device other than as indicated.

2.3 Description of the appliance

The outdoor unit are designed for vertical outdoor installation, on the floor or wall and and operate in combination with indoor units **OKKI**.

The units are manufactured in two different sizes according to performance:

Three-phase 15T models

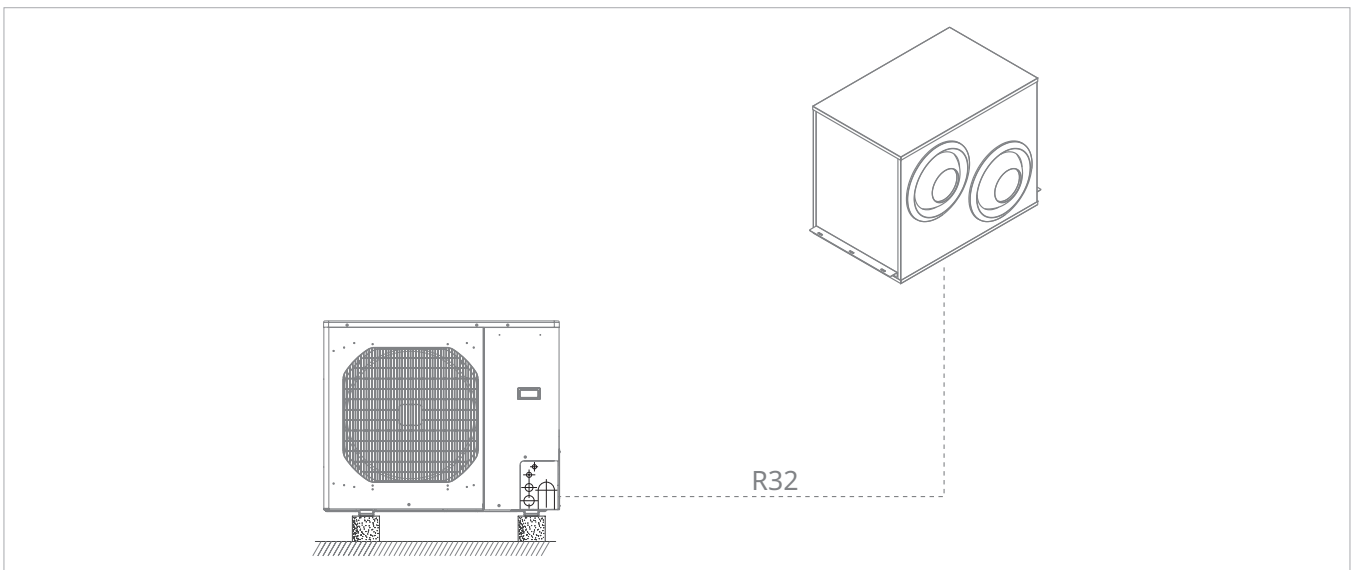
Three-phase 30T models

2.3.1 Combination with indoor units

The outdoor units can be paired with refrigerant fittings to the indoor units.

Refer to the respective manual for details of the indoor unit.

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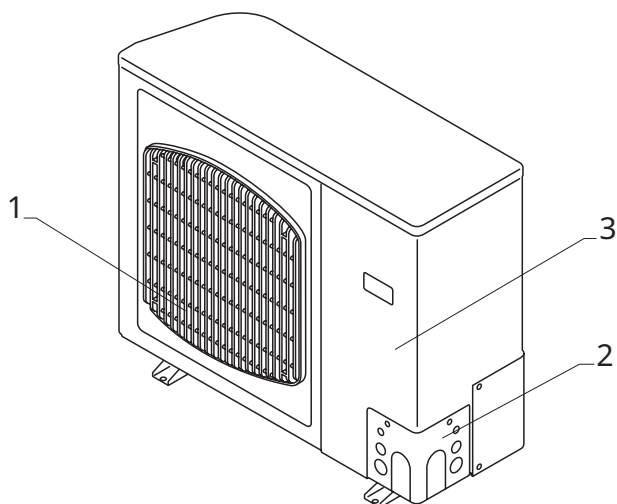
Size compatibility

Indoor unit	15	30
Three-phase outdoor unit	15T	30T

2.4 List of external components

2.4.1 Outdoor unit

1. Fan grille
2. Connections panel
3. Access panel



3. INSTALLATION

3.1 Preliminary warnings

- ⚠ **This section is dedicated to the Installer. The features of the installer are described in the "Recipients" p. 4 chapter.**
- ⚠ **For detailed information on the products, refer to chapter "Technical information" p. 33.**
- ⚠ The installation must be carried out by the installer in accordance with national installation regulations. There is a risk of water leakage, electric shock or fire if the installation is not performed correctly.
- ⚠ During the installation, it is necessary to observe the precautions mentioned in this manual, and on the labels placed inside the equipment, as well as to adopt any precaution suggested by common sense and by the Safety Regulations in force in the place of installation.
- ⚠ Be sure to use the supplied or specified installation parts. Use of other parts may cause the unit to come loose, leak water, or cause electrical shock, or fire.
- ⚠ The Manufacturer accepts no liability for damage caused to animals or property due to failure to apply the indicated rules which may cause malfunction of appliances.

3.1.1 Preliminary warnings for R32

- ⚠ Safety checks must be carried out to ensure that the risk of combustion is minimised before starting work on systems containing flammable refrigerants.
- ⚠ The appliance must be protected against accidental impacts to prevent mechanical damage.
- ⚠ Do not puncture or burn.

3.2 Reception

3.2.1 Preliminary warnings

- ⚠ On receipt check for any damage and, if any is found, accept the goods with reservation, and keep photographic evidence of any damage found
- ⚠ The package must be transported in an upright position; otherwise, notify the carrier immediately.
- ⚠ In the event of damage, notify the shipper within 3 days of receipt of any damage by registered mail with return receipt, submitting photographic evidence. Similar information should be sent by fax to the manufacturer (jurisdiction will be at the Court Trento for any dispute).
- ⚠ No notice of damage will be accepted after 3 days from delivery.
- ⚠ Check if there is refrigerant inside the package using an electronic leak detector suitable for the system refrigerant. If it is present, the refrigeration circuit is likely damaged. In this case, do not install the appliance and call the Technical Assistance Centre.

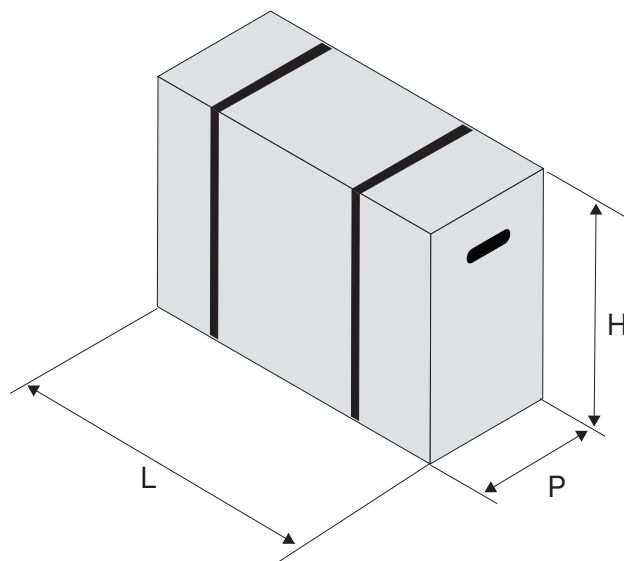
Preliminary warnings for R32

- ⚠ Check if there is refrigerant inside the package using an electronic leak detector suitable for the system refrigerant. If it is present, the refrigeration circuit is likely damaged. In this case, do not install the appliance and call the Technical Assistance Centre.

3.2.2 Package description

The packaging is made of suitable material and carried out by experienced personnel.
The appliance is shipped in standard packaging consisting of a cardboard sleeve and a set of expanded polystyrene protectors.
There is a pallet underneath the packaging of the unit to facilitate transport and moving.
Units are delivered complete and in perfect condition.

3.3 Dimensions and weights with packaging



3.3.1 Outdoor unit

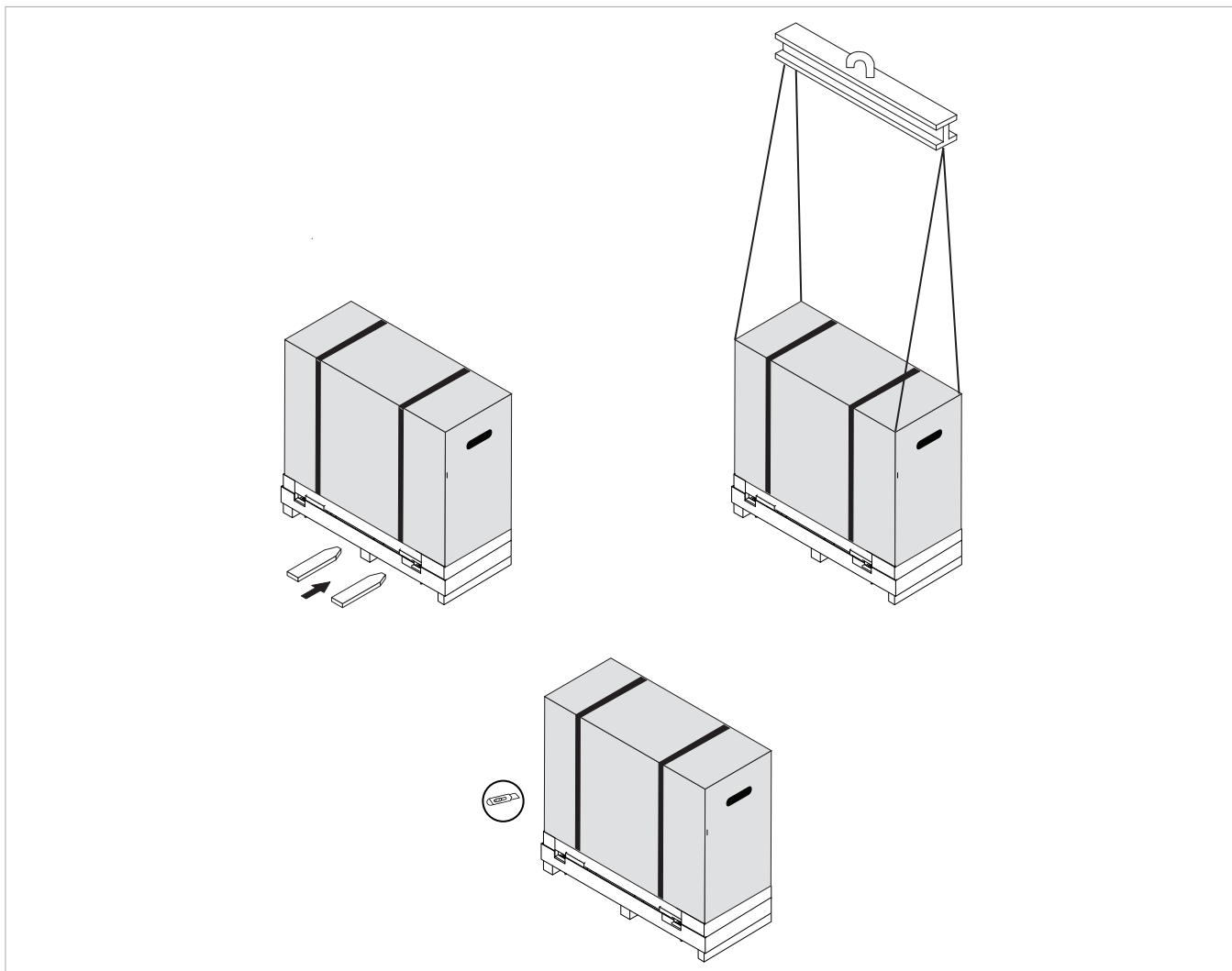
Models	m.u.	15	30
Dimensions and weights with external unit packaging			
Width	mm	1095	1252
Height	mm	1134	1135
Total depth	mm	529	616
Weight	kg	92,0	117,0

3.4 Handling with packaging

3.4.1 Preliminary warnings

- ⚠ The appliance must be handled only by qualified personnel, adequately equipped and with equipment suitable for the weight and dimensions of the appliance.
- ⚠ Before moving the unit, check the lifting capacity of the machinery used following the instructions on the packaging.
- ⚠ Move the unit to an upright position.
- ⚠ Stay clear of the area below and around it when the load is lifted off the ground.
- ⚠ If a forklift truck is used, put the base in the appropriate openings.
- ⚠ Avoid dangerous situations when using a hoist to lift the appliance.

3.4.2 Movement methods



The product can be handled as follows:

- using a fork lift or a transpallet which can bear its weight
- ⚠ Use a small balance to prevent the pressure of the belts damages the unit.

⚠ Only in exceptional cases can the unit be moved manually for short distances using the handles provided on the packaging. In this case, the weight of the unit must be carefully checked.

- ⚠ The equipment must always be handled vertically.
- ⚠ Do not tilt the appliance more than 15°.
- ⚠ The weight of the appliance is unbalanced towards the compressor side.

3.5 Storage

3.5.1 Preliminary warnings

- ⚠ Store in accordance with the applicable national regulations.
- ⚠ Store the box in a closed environment protected from atmospheric agents and isolate it from the floor using planks or pallets.
- ⚠ Do not turn the packaging upside down.
- ⚠ Do not stack the appliances.
- ⚠ Only place the appliance in a vertical position.

⚠ Store in a clean and dry place.

Preliminary warnings for R32

- ⚠ The appliance must be protected against accidental impacts to prevent mechanical damage that causes leakage of refrigerant.
- ⚠ The appliance must be placed in a room where there are no open flames continuously in operation (e.g. a gas appliance in operation) and no sources of ignition (e.g. an electric heater in operation).

3.5.2 Appliance with packaging

Store the package:

- in a dry and clean place
- in a closed environment protected from atmospheric elements
- insulated from the ground by crossbars or pallets

3.5.3 Appliance without packaging

The following procedures are recommended in the case of medium to long term storage:

- check that no water is present in the hydraulic systems
- do not remove the protection of the heat exchanger
- do not remove plastic protective films
- check that the electrical panels are closed

3.6 Unpacking

3.6.1 Preliminary warnings

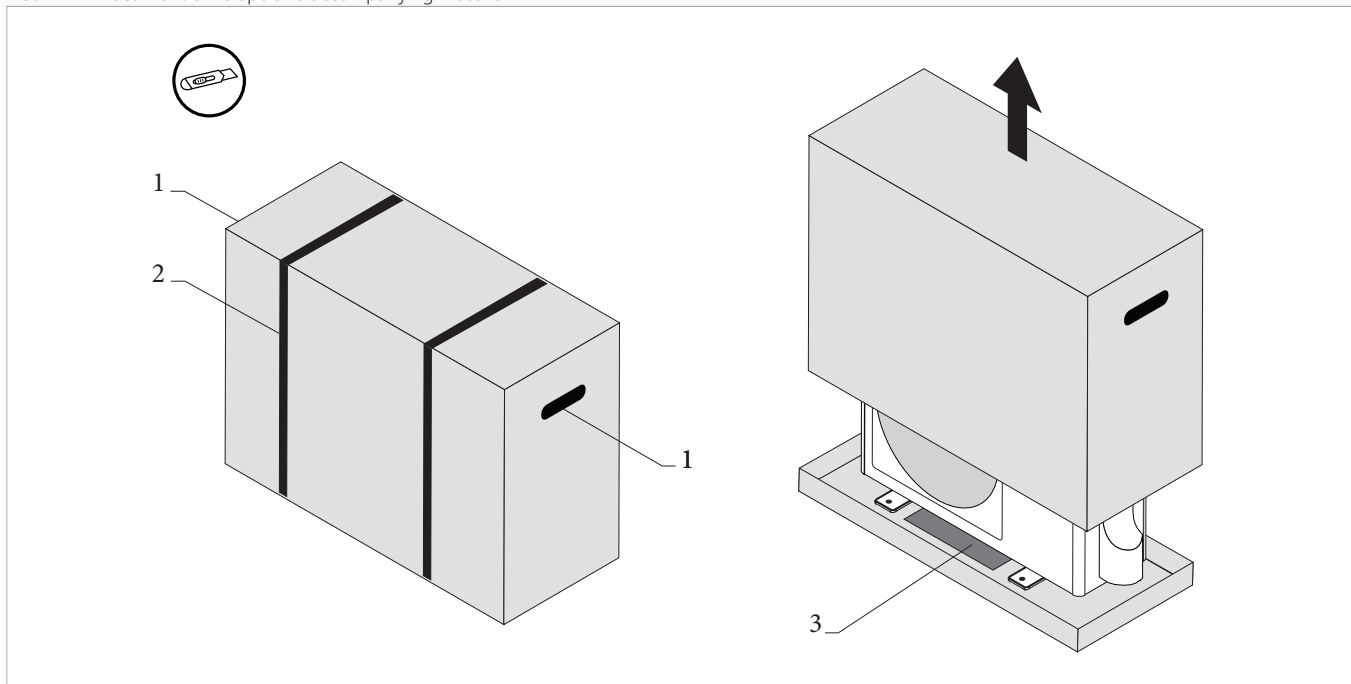
- ⚠ Check that no components were damaged during transport.
- ⚠ Dispose of the packaging components following the applicable waste disposal regulations. Check for disposal arrangements with your municipality.
- ⊖ The packing material (cardboard, staples, plastic bags, etc.) must not be dispersed or abandoned in the surrounding environment and must be kept out of the reach of children, as it poses a risk of danger.

3.6.2 Specific warnings for R32

- ⚠ Check that there are no sources of ignition in continuous operation (open flames, gas appliances, electric stoves, lighted cigarettes, etc.).
- ⊖ Using leak detectors with halogen lamps is prohibited.
- ⊖ Smoking in the vicinity of the appliance is prohibited.
- ⊖ Using a mobile phone near the appliance is prohibited.

3.6.3 Remove the package

1. Handles
2. Strapping
3. Document envelope and accompanying material



Remove the packing:

- ▶ cut the strapping
- ▶ remove the packing
- ▶ remove the polystyrene elements

- ⚠ It is forbidden to dispose of, or leave in the reach of children, the packaging materials which could become a source of danger. It must therefore be disposed of in accordance with current legislation.

Accompanying material

They are included with the appliance, inside the packaging:

- 1 installer manual of the unit

- ⚠ Check the presence of the individual components.

3.7 Handling without packaging

3.7.1 Preliminary warnings

- ⚠ The appliance must be handled only by qualified personnel, adequately equipped and with equipment suitable for the weight and dimensions of the appliance.

3.7.2 Movement methods

To handle:

- ▶ lift from the base of the packaging

- ⚠ The unit can be moved manually for short distances. In this case it is necessary to check carefully that the weight of the unit does not exceed the regulations in relation to the number of people used.

- ⚠ Use means suitable for the weight of the appliance and how it is to be handled.

3.8 Installation site

The location of the appliance must be determined by the plant engineer or a competent person and must take into account both purely technical requirements and any national/local legislation in force.

The appliance is intended for outdoor installation.

3.8.1 Preliminary warnings

- ⚠ Avoid installing the unit near:
 - positioning in utility shafts and/or hopper window
 - obstacles or barriers that cause recirculation of the exhaust air
 - narrow places where the sound level of the appliance can be enhanced by reverberations or resonances
 - bedrooms and places used for resting
 - positioning in corners where dust, leaves and anything else that may reduce the efficiency of the appliance by obstructing the air passage is usual
 - environments with the presence of flammable or explosive gases
 - very humid environments (laundries, greenhouses, etc.)
 - environments with aggressive atmospheres
 - environments with the presence of steam or mineral oil mist
 - solar radiation and proximity to heat sources
 - areas prone to strong gusts of wind
 - places with strong voltage fluctuations
- ⚠ The sound level measured under actual installation conditions may be higher than that indicated in the technical data of the unit due to ambient noise and acoustic reflections.
- ⚠ Avoid placing the unit within 1 metre of radio and video equipment.
- ⚠ Avoid installation in locations directly exposed to sea winds. The saline atmosphere accelerates the corrosion process of the materials reducing the life of the unit.
- ⚠ Avoid placement in vehicles or on ships.

- ⚠ Make sure that:
 - the installation site of the unit must be chosen with the utmost care to guarantee adequate protection from shocks and consequent damage
 - the supporting surface or wall can bear the weight of the appliance
 - the section wall does not involve load-bearing construction elements, piping or electrical lines
 - no load-bearing elements of the construction are compromised
 - the appliance must be installed in a position where it can be easily serviced
 - the safety distances between the units and other appliances or structures are scrupulously respected so that the air entering and leaving the fans is free to circulate
 - air expulsion is not hindered by strong winds in the opposite direction

- ⚠ Baffle panels must be installed in case of installation in places with strong gusts of wind in direction opposing the air expulsion. Take the minimum distances shown under "Installation minimum distances" *p. 15* into account.

- ⚠ If the appliance is installed incompletely or on an inappropriate base, it could cause damage to persons or property if it should detach from its base.

- ⚠ Provide the following:
 - a drain and a water supply nearby
 - a compliant power supply nearby
 - fixing elements suitable for the type of support

Preliminary warnings for R32

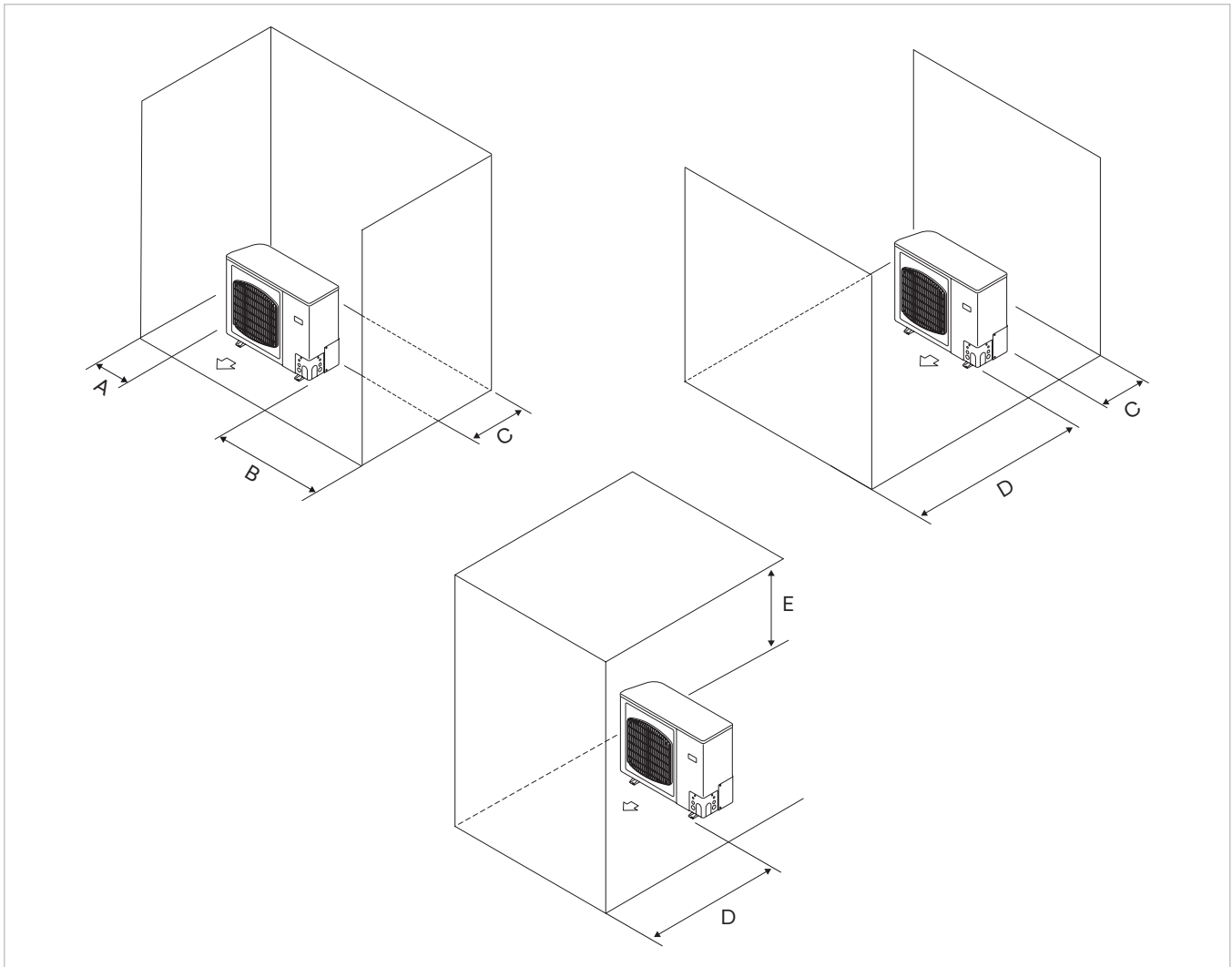
- ⚠ Perform the following checks:
 - carry out safety checks to ensure that the risk of combustion is minimised
 - avoid working in confined spaces
 - delimit the area around the workspace
 - ensure safe working conditions around the area by controlling flammable material

3.9 Installation minimum distances

The clearance zones for the installation and maintenance of the appliance are shown in the figure. Established spac-

es are necessary to allow for normal cleaning and maintenance.

⚠ Make sure that there is sufficient space to allow the panels to be removed for routine and supplementary maintenance operations.



Models	m.u.	15 T	30T
Distance A	mm	≥ 150	≥ 150
Distance B	mm	≥ 250	≥ 250
Distance C	mm	≥ 150	≥ 150
Distance D	mm	≥ 1000	≥ 1000
Distance E	mm	≥ 1000	≥ 1000

3.10 Positioning

⚠ The unit requires two or more people to position the unit.

The units can be installed on the floor or wall.

⚠ For wall installation, fixing brackets will be in charge of installer.

⚠ The equipment must always be handled vertically.

⚠ Do not tilt the appliance more than 15°.

⚠ The weight of the appliance is unbalanced towards the compressor side.

3.10.1 Preliminary warnings

⚠ When installing in locations subject to gusts of wind, install windbreaks to prevent the unit from malfunctioning.

⚠ When installing in locations subject to heavy snowfalls, the unit must be mounted at a height above the maximum snow level.

⚠ Install the unit in a well-ventilated place so that the outdoor temperature does not exceed 40°C.

- ⚠ Underneath the device prearrange a layer of gravel for the drainage of the defrosting water.
- ⚠ Use concrete or a similar material to make the base, and ensure good drainage. In this case, prearrange vibration damping blocks in order to prevent the transmission of the vibrations.
- ⚠ Bases made on concrete or similar material have to be prepared by installer.

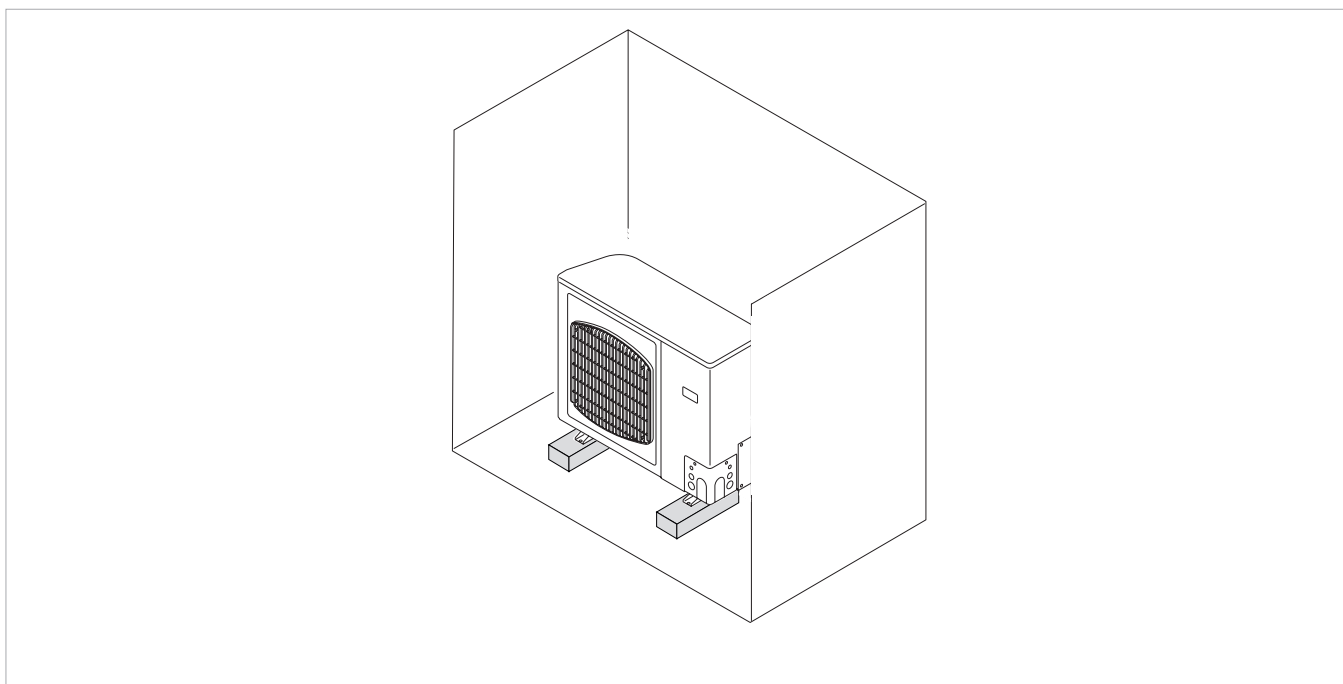
3.10.2 Outdoor unit

Floor positioning

Preliminary warnings

- ⚠ The unit must be fixed to the ground.

Positioning



- ⚠ **For dimensional information, refer to chapter "Dimensions" p. 35.**
 - ▶ place the unit on a perfectly level surface
 - ▶ fix the brackets to the floor

Make sure that:

- it is levelled
- easy access is allowed to the hydraulic and electrical parts

3.11 Refrigeration connections

The maximum length of the connection lines to the internal unit must be between 5 and 100 m in each direction (for lengths longer than 30 m, the R32 charge must be topped up with 80 g per meter). In addition, the maximum height difference between the internal unit and the external unit must not exceed the figures indicated in the table "Collegamenti frigo" p. 19.

3.11.1 Preliminary warnings

- ⚠ **The installer must comply with the provisions of Regulation 303/2008/EC which defines, in accordance with Directive 842/2006/EC, the requirements for companies and personnel with regard to fixed refrigeration, air conditioning and heat pump equipment containing certain fluorinated greenhouse gases.**

⚠ For dimensional information, refer to chapter "Technical information" p. 33.

- ⚠** Use equipment suited for the refrigerant in the system.
- ⚠** Plan the route of the pipeline so as to reduce the length and number of bends as much as possible for best performance of the system.
- ⚠** The refrigeration lines must be as straight as possible and the radius of any bends must be greater than 40 mm.
- ⚠** Use only special copper pipes for cooling.
- ⚠** The pipes must be supplied clean and sealed at the ends. Pre-insulated copper refrigeration pipes can be used.
- ⚠** The pipes must not contain residues of shavings, dirt or water which could damage the components of the unit and impair its correct operation.
- ⊖** Using pipes with diameters other than that indicated in the technical data table is forbidden.
- ⊖** Employing used refrigeration lines is prohibited because the tightness of the flare fitting cannot be guaranteed.
- ⊖** Making connections using the normal plumbing system is forbidden.
- ⊖** Welding in the presence of refrigerant in the refrigerant circuit is forbidden. If necessary, the refrigerant must be recovered and the circuit cleaned with oxygen-free nitrogen.

Specific warnings for R32

- ⚠** The length of the connecting pipes must be kept to a minimum.
- ⚠** Connecting pipes must be protected from physical damage and must not be installed in an unventilated space if this space is smaller than that shown in the Minimum Floor Area table.
- ⚠** The connecting pipes must be installed in a position where they are unlikely to be exposed to corrosive substances unless they are constructed of materials that are inherently corrosion-resistant or adequately protected against corrosion.
- ⚠** Compliance with national legislation for the gas in use is mandatory.
- ⚠** The refrigerant fittings must be accessible for maintenance purposes.
- ⚠** A controlled procedure must be followed to minimise the risk of flammable gases or vapours being present while working.
- ⊖** Work with heat (welding, soldering, etc.) is prohibited.
- ⚠** The following precautions must be taken when establishing the refrigeration fittings:

Area inspections

- carry out safety checks to ensure that the risk of combustion is minimised
- avoid working in confined spaces

- delimit the area around the workspace
- ensure safe working conditions around the area by controlling flammable material

Checks for the presence of refrigerant

- The area must be checked with an appropriate refrigerant detector before and during work to ensure that the technician is aware of potentially flammable atmospheres
- make sure that the leak detection equipment is suitable for use with flammable refrigerants, i.e. that it does not produce sparks, is adequately sealed or intrinsically safe
- ⊖** The use of combustion fluid detectors, e.g. a halide torch or other detection system using an open flame, is forbidden.

Combustion source inspections

- the people operating on a refrigeration system involving the exposure of pipes that either contain or contained a flammable refrigerant must not use any source of combustion that could lead to a risk of fire or explosion
- all potential sources of combustion, including lit cigarettes, must be kept sufficiently far away from the workplace during operations in which flammable refrigerant could be released into the surrounding space
- check the area around the equipment to ensure there is no fire hazard or risk of combustion
- put up "No smoking" signs

Area ventilation inspections

- ensure that the area is adequately ventilated
- there must be a continuous degree of ventilation while working
- ventilation must safely disperse any released refrigerant and preferably expel it outside into the atmosphere

Leak detection

- ⊖** The use of combustion fluid detectors, e.g. a halide torch or other detection system using an open flame, is forbidden.
- ⚠** Follow the instructions below for leak detection:
 - use electronic detectors to detect flammable refrigerants
 - check that the detectors are properly calibrated before use
 - calibration operations must be carried out in an area free from refrigerant
 - make sure that the detector is not a potential source of combustion and that it is suitable for the refrigerant used
 - all open flames must be removed if a leak is suspected
 - in the event of a leak requiring brazing, it is mandatory to recover all the refrigerant from the system or isolate it (by means of shut-off valves) in a part of the system away from the leak

⚠ The use of silicone sealant may affect the effectiveness of some types of leak detectors.

Charging procedure

⚠ For the charging procedure make sure that:

- there is no contamination between different refrigerants
- the pipes of the charging equipment are as short as possible to minimise the amount of refrigerant
- the cylinders are kept in a vertical position
- the refrigeration system is earthed before charging

⚠ Make sure that the leak test has been carried out before charging.

⚠ Check if there are no leaks of refrigerant before leaving the site.

⚠ Label the system when charging is complete.

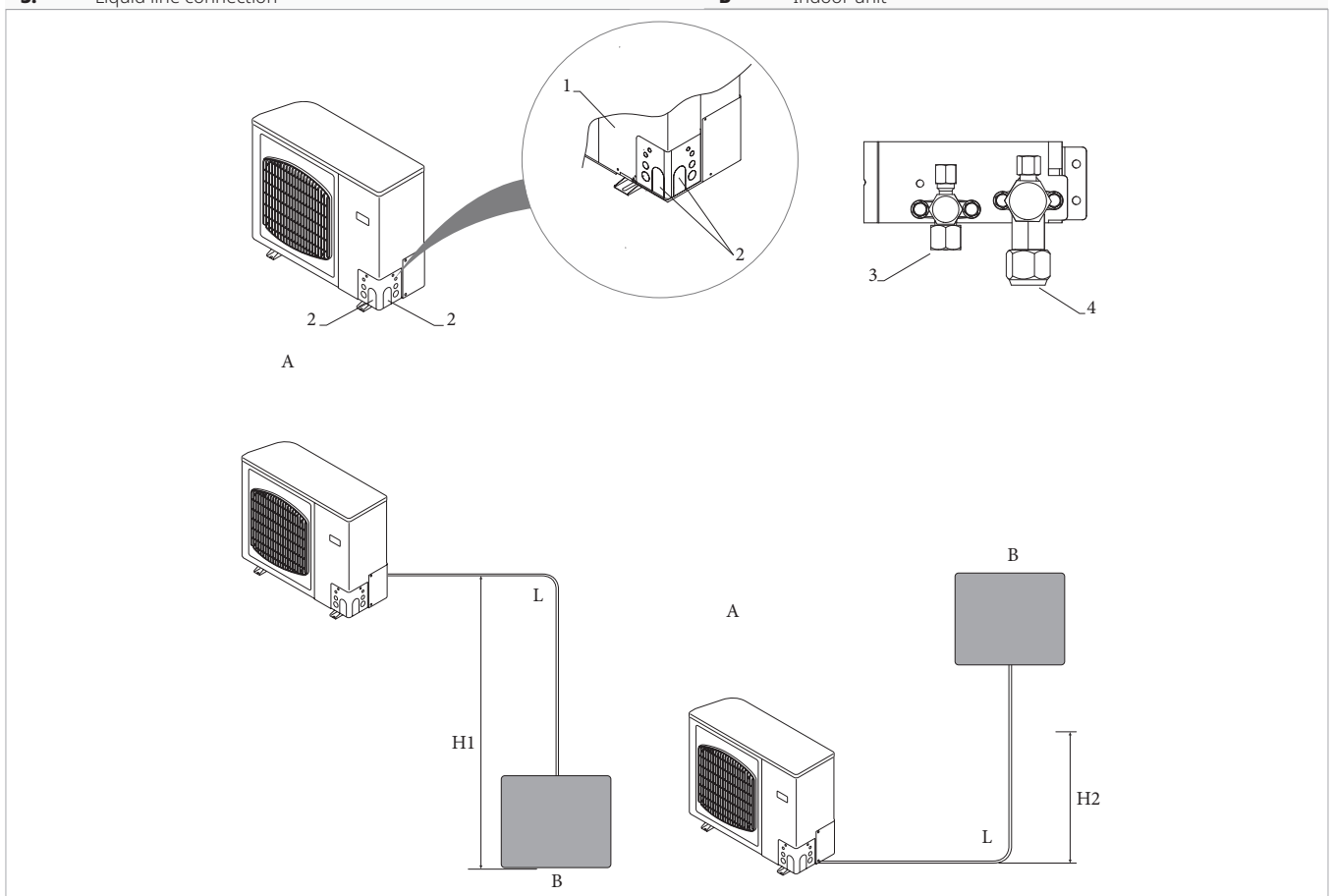
⊖ Overloading the refrigeration circuit is forbidden.

⊖ Introducing a refrigerant other than the one indicated or mixing different refrigerants into the system is forbidden.

3.11.2 Connection diagram

1. Inspection panel
2. Refrigeration connections
3. Liquid line connection

4. Gas line connection
A Outdoor unit
B Indoor unit

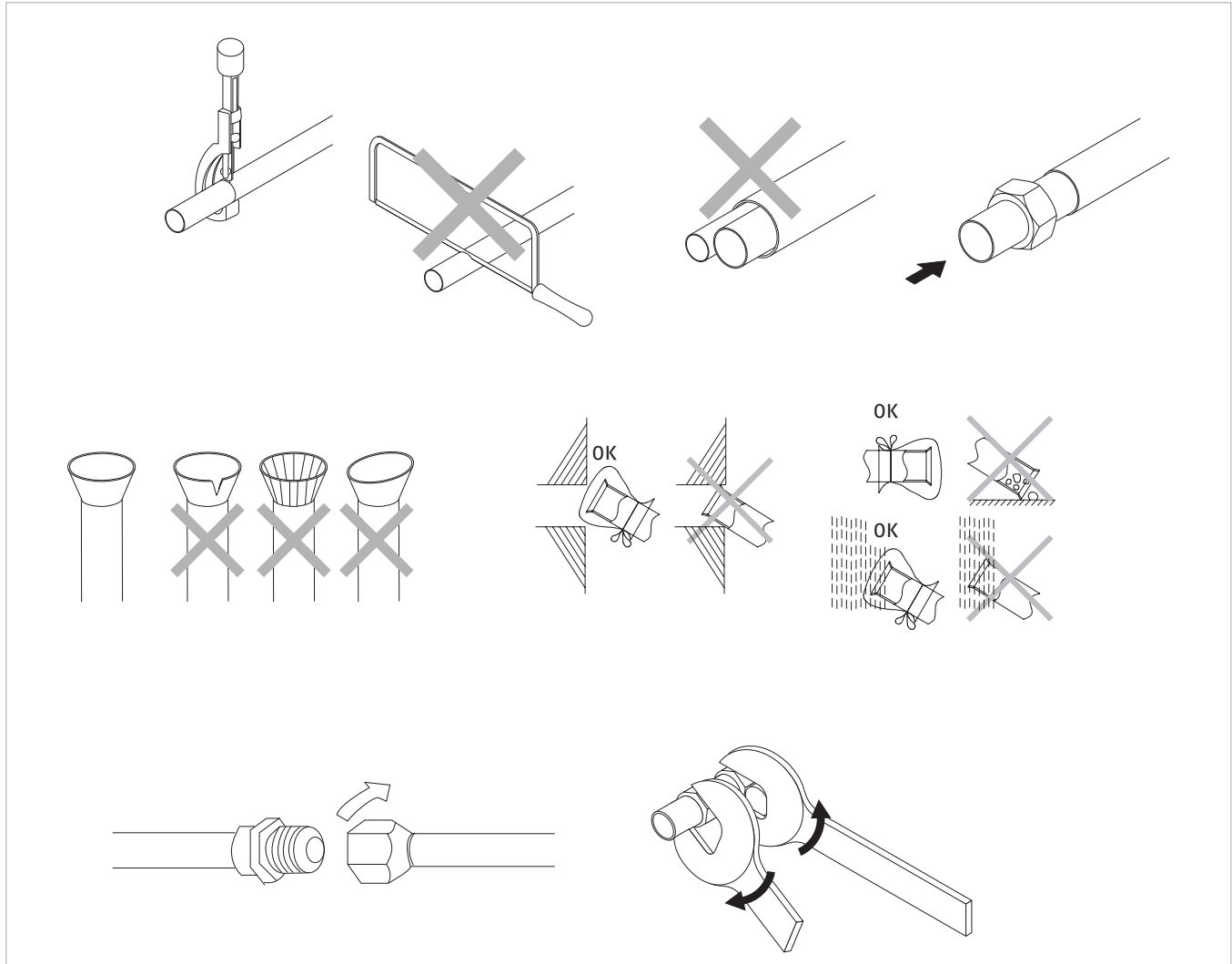


⚠ There is no need for siphons on the refrigeration lines because the compressors of the units are equipped with oil separators.

Indication	Description	m.u.	15T - 30T
L	Maximum permitted development in length	m	100
H1	Limit difference of elevation between the two units with the outdoor unit positioned higher	m	30
H2	Limit difference of elevation between the two units with the outdoor unit positioned lower	m	15
	Length of connecting pipes without additional gas charge	m	5 ÷ 30
	Additional charge for meter of pipe between 30 and 100 m	g/m	80

Models	m.u.	15	30
Refrigerant gas data			
Type of refrigerant		R32	R32
Quantity of refrigerant	kg	3,00	5,20
Suction	"SAE	5/8	-
Liquid	"SAE	3/8	1/2
Solder connection	"SAE	-	7/8

3.11.3 Connection of piping



Preliminary warnings

- ⚠ After cutting the proper lengths, seal the ends immediately on the roll and cut piece.
- ⚠ Fasten a cable raceway to the wall (possibly with internal partitioning) of suitable size for the pipes and electrical wires to pass through.
- ⚠ The refrigeration fittings, equipped with shut-off valves, are ready for flared fittings.
- ⚠ Cut the sections of pipe leaving an extra 3-4 cm on the ends.

- ⚠ Immediately after cutting and deburring the pipes, seal the ends with insulating tape.
- ⚠ Remove possible burrs with the special tool.
- ⚠ Use a wheel pipe cutter only to cut the pipes clamping it in short lengths so as not to crush the pipe.
- ⚠ **NEVER USE A NORMAL HANDSAW, scraps could fall inside the pipe and enter the circuitry of the system, damaging the parts severely.**
- ⚠ Avoid introducing non-condensable gases (air) into the circuit. Otherwise, high pressures could be generated during operation with the risk of breakage.

- ⚠ Carefully tape together any joints in the sheath.
- ⊖ Do not place both pipes in the same sheath as this would jeopardize the proper operation of the system.

Connection

Before connecting:

- ▶ insert the fixing nut into the pipe
- ▶ flare the pipe ends using the special tool
- ▶ Lubricate the connecting thread with oil for coolant

- ⚠ Do not use any other type of lubricant.
- ⚠ The flared fitting must be free of cracks, crazing or flaking.
- ⚠ Avoid using refrigerant oil on the outside of the countersink.

To connect:

- ▶ positioning the refrigeration lines
- ▶ screw the pipe nut manually on the connecting thread
- ▶ hold the threaded part of the fitting still with a spanner
- ▶ use a torque wrench on the nut to tighten it definitively

- ⚠ Keep the leak detector switched on near the unit to signal any refrigerant leaks while connecting.

Pipeline Ø		Tightening torque
mm	inches	Nm
6,35	1/4	18
9,52	3/8	42
12,70	1/2	55
15,88	5/8	60
19,05	3/4	110

After the connection:

- ▶ create a vacuum in the pipes
- ▶ check for refrigerant leaks
- ▶ apply thermal insulation on the joining points

3.11.4 Insulation of pipes

If pre-insulated pipes are not used, insert the pipes into the insulation with the following characteristics:

- closed-cell polyurethane foam material
- maximum transmission coefficient 0.45 W/(K x m²) or 0.39 Kcal/(h x C x m²)
- minimum thickness of 6 mm for liquid lines
- minimum thickness 9 mm for gas lines

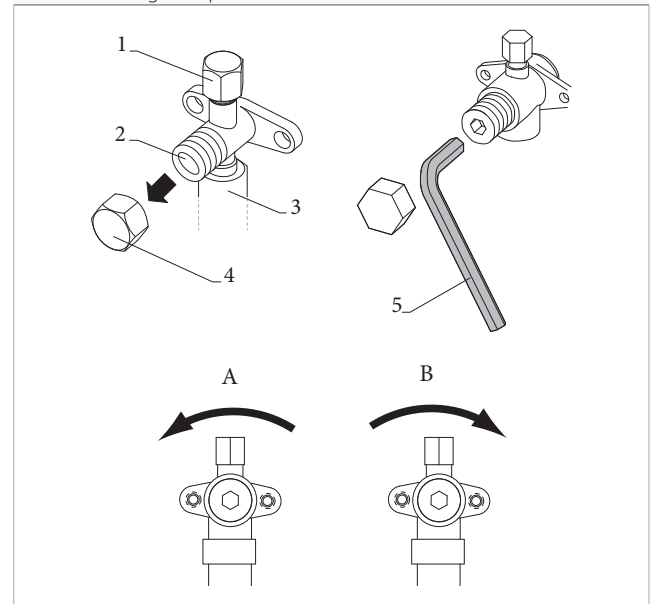
- ⚠ Do not put both pipes in the same sheath because this will cause the system to malfunction.
- ⚠ Carefully tape together any joints in the sheath.
- ⚠ Avoid partial insulation of the pipes.
- ⚠ Avoid over-tightening the tape to avoid damaging the insulation.

3.11.5 Shut-off valves

The refrigeration fittings are equipped with shut-off valves.

It may be required to open or close the valves during operations on the refrigeration circuit, start-up and maintenance.

A	Opening
B	Closing
1.	Service fitting cover cap
2.	Shut-off valve shaft
3.	Refrigerant pipe fitting
4.	Shut-off valve cover cap
5.	Hexagonal spanner



In case it is required:

- ▶ remove the valve cover cap
- ▶ act on the valve shaft with a hexagonal key
- ▶ open or close as required
- ▶ stop immediately as soon as the valve shaft has reached the stopping point
- ▶ use a torque wrench calibrated to the diameter of the valve

Pipeline Ø		Hexagonal spanner	Valve tightening torque	Cap tightening torque
mm	inches	mm	Nm	Nm
6,35	1/4	5	6	25
9,52	3/8	5	6	25
12,70	1/2	5	8	30
15,88	5/8	5	10	35

- ⚠ Do not apply force beyond the stop point to avoid breaking the shaft and causing leaks of refrigerant as a consequence.

Once the operations have been completed:

- ▶ replace the valve cover cap
- ⚠ Carefully check for leaks from the cap closing point.

3.11.6 Circuit tightness check

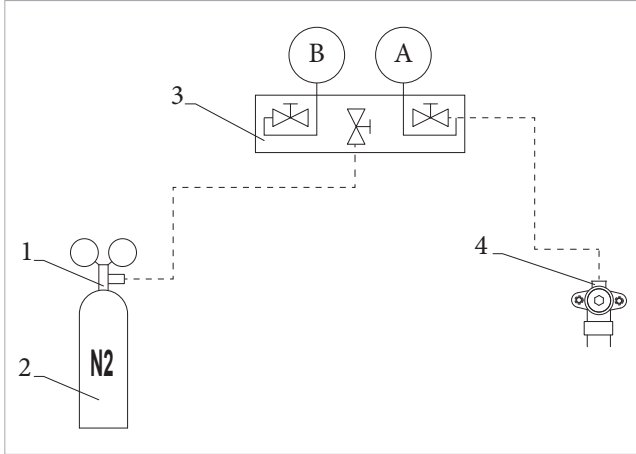
The appliance was tested at the factory before shipping and it is not normally necessary to check the tightness of the internal refrigeration circuit.

On the other hand, the on-site refrigeration circuit must be checked.

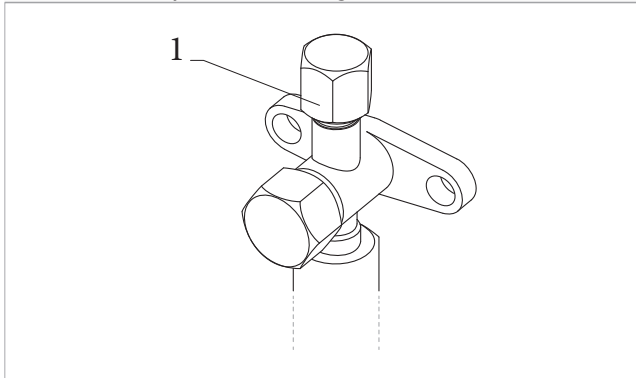
To check tightness:

- ▶ keep the shut-off valves of the outdoor unit in the closed position

A	High pressure
B	Low pressure
1.	Pressure reducer
2.	Nitrogen cylinder
3.	Pressure gauge unit
4.	Three-way valve service fitting



1. Three-way valve service fitting



- ▶ fill the circuit with nitrogen through the service fitting on the three-way shut-off valve

- ⊖ Using oxygen or acetylene or other flammable or poisonous gases in the refrigeration circuit is forbidden because they can cause explosions.
 - ▶ achieve a pressure of 0.3 Mpa
 - ▶ wait 3 minutes.
 - ▶ check that the pressure has not dropped
 - ▶ achieve a pressure of 1,5 Mpa
 - ▶ wait 3 minutes.
 - ▶ check that the pressure has not dropped
 - ▶ achieve a pressure of 3 Mpa
 - ▶ record the pressure achieved and ambient temperature
 - ▶ leave the circuit pressurised for 1 day
 - ▶ check that the pressure has not dropped

⚠ If the temperature has changed since the recording, consider that the pressure changes by 0,01 Mpa for 1 °C.

⚠ If the pressure has dropped, search for the leak, repair it and repeat the test.

⚠ Check all joints and welds to locate the leak using a soap and water solution.

Having checked that there are no leaks:

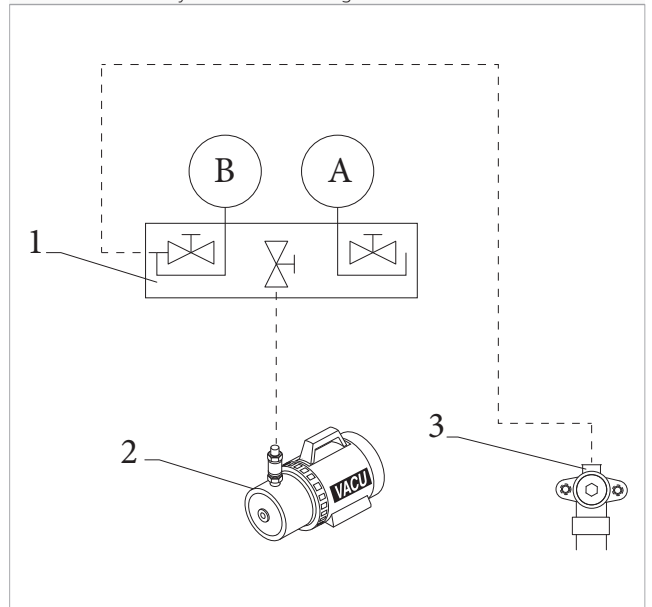
- ▶ create a pneumatic vacuum in the circuit

3.11.7 Pneumatic vacuum

To create a pneumatic vacuum in the circuit:

- ▶ keep the shut-off valves of the outdoor unit in the closed position

A	High pressure
B	Low pressure
1.	Pressure gauge unit
2.	Vacuum pump
3.	Three-way valve service fitting

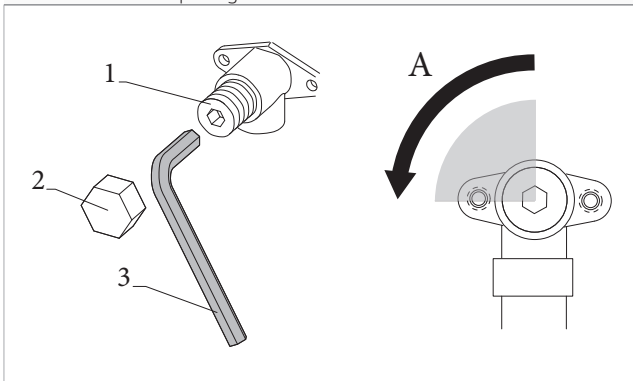


- ▶ connect the vacuum pump to the pressure gauge unit
- ▶ connect the pressure gauge unit to the service fitting on the three-way shut-off valve
- ▶ completely close the high-pressure valve of the pressure gauge unit
- ▶ completely open the low-pressure valve of the pressure gauge unit
- ▶ let the vacuum pump run for at least 15 minutes
- ▶ achieve a pressure close to -0.1 MPa
- ▶ close the low-pressure valve of the pressure gauge unit
- ▶ switch off the vacuum pump
- ▶ wait 5 minutes.
- ▶ check that the pressure has not risen

If the pressure has risen:

1. Two-way shut-off valve
2. Shut-off valve cover cap
3. Hexagonal spanner

A 1/4 turn opening



- ▶ open the two-way shut-off valve by a quarter of a turn
- ▶ close it after 6 seconds so that a small amount of refrigerant enters the circuit
- ▶ search for the leak using a soap and water solution
- ▶ repair the leak
- ▶ repeat the pneumatic vacuum

⚠ Take the necessary safety precautions for the system coolant.

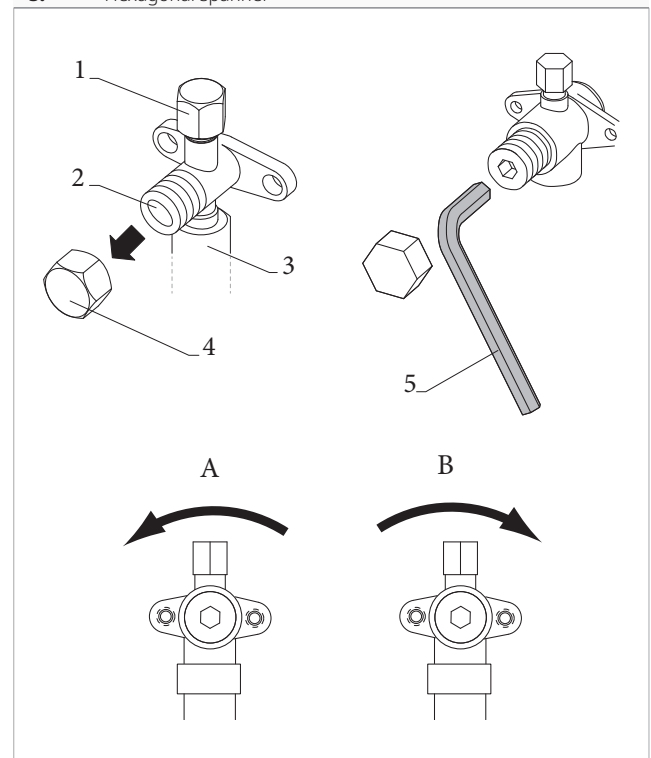
⊖ Welding in the presence of refrigerant in the refrigerant circuit is forbidden. If necessary, the refrigerant must be recovered and the circuit cleaned with oxygen-free nitrogen.

⊖ Using cleaning agents containing chlorine is prohibited because they can react with the refrigerant and corrode the copper pipes.

If the pressure has not risen:

- ▶ remove the pressure gauge pipe from the service fitting on the three-way shut-off valve

- | | |
|-----------|---------------------------|
| A | Opening |
| B | Closing |
| 1. | Service fitting cover cap |
| 2. | Shut-off valve shaft |
| 3. | Refrigerant pipe fitting |
| 4. | Shut-off valve cover cap |
| 5. | Hexagonal spanner |



- ▶ fully open the shut-off valves of the unit
- ▶ replace the valve cover cap

⚠ Carefully check for leaks from the cap closing point.

⚠ Do not apply force beyond the stop point to avoid breaking the shaft and causing leaks of refrigerant as a consequence.

⚠ At the end of the check, remove any residue of the soap and water solution from the pipes.

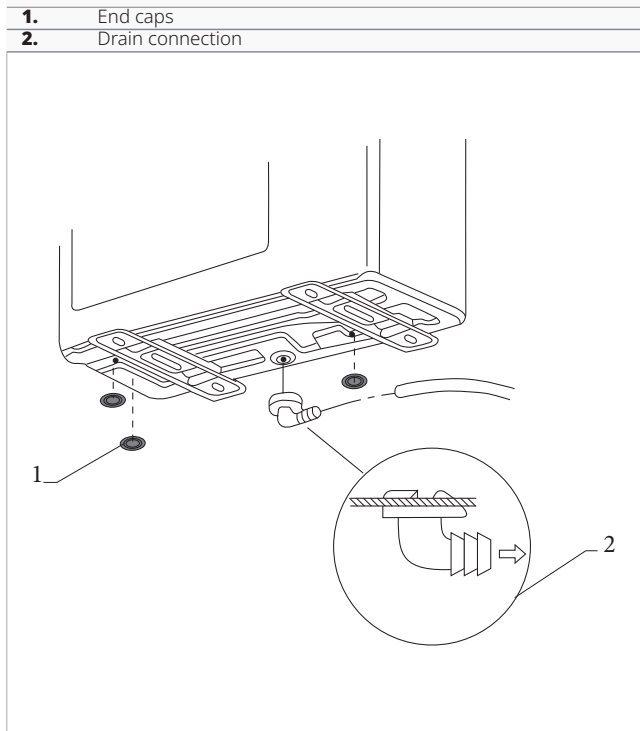
⚠ Do not use the same vacuum pump with different refrigerants.

⚠ The vacuum pump requires regular maintenance and the purity of the oil must be checked.

⚠ **The additional refrigerant charge can be added after creating a pneumatic vacuum and establishing the electrical connections "Additional refrigerant charge" p. 28.**

3.11.8 Condensate drain

The unit produce condensation which must be drained while in heating mode.



- ▶ place the caps on the holes provided on the base
- ▶ place the condensate drainage connection
- ▶ connect a drainage pipe
- ▶ direct it towards a suitable location for drainage

- ⚠ If the condensation is not drained, it stays on the floor. In below zero temperatures it can freeze and constitute a danger: provide appropriate barriers to prevent people maybe approach to the unit, or channel the water on pits so that it cannot stay an accessible surfaces.
- ⚠ Avoid siphons.
- ⚠ Avoid counter-slope sections.
- ⚠ Make sure all joints are sealed to prevent leakage of water.
- ⚠ End caps and drain connection are not supplied with the unit.

3.12 Electric connections

The appliance leaves the factory fully wired and only needs to be connected to the power supply and external unit.

3.12.1 Preliminary warnings

- ⚠ All operations of an electrical nature must be carried out by qualified personnel having the necessary training, who understands the legal requirements, and is informed about the risks related to such operations.
- ⚠ All connections must be made following the regulations in force in the country of installation.
- ⚠ Before carrying out any work, make sure that the power supply is switched off.
- ⚠ The unit must only be powered after all plumbing and electrical work has been completed.
- ⚠ References:
 - refer to the wiring diagrams in this manual for the electrical connections and the manual of the paired indoor unit
 - refer to the technical rating plate located on the appliance for the power supply voltage
- ⚠ Make sure that:
 - the power supply voltage and system frequency match to the values indicated on the device's plate data
 - the cables must be appropriate for the type of installation in accordance with the applicable IEC standards
 - the cable terminals are provided with pin terminals of a cross-section proportionate to the connecting cables before inserting them into the terminal block
 - the disconnection device is located in an easily accessible place in order to be able to intervene in the event of an emergency

- ⚠ It is required:
 - provide a suitable earthing connection
 - It is understood that all units are single phase
- ⚠ Electrical connections must be made following the instructions in this manual and with the standards or practices governing the connection of electrical equipment throughout the country. Insufficient capacity or incomplete electrical connections may result in electric shock or fire.
- ⚠ The power supply line must be adequately sized to avoid voltage drops or overheating of cables or other devices placed on the line itself.
- ⚠ Use a dedicated power supply circuit. Never use a power supply to which another appliance is also connected because of the risk of overheating, electric shock or fire.
- ⚠ For the electrical connection, use a cable that is long enough to cover the entire distance without any connection. Do not use extension cables. Do not apply other loads on the power supply.
- ⚠ After connecting the interconnection and power cables, make sure that the cables are routed so that they do not apply excessive forces on the covers or electrical panels. Incomplete connection of the covers may result in overheating of the terminals, electric shock or fire.
- ⚠ Any replacement of the power cable must be carried out by authorised personnel and in accordance with the applicable national law.
- ⚠ The Manufacturer is not liable for any damage caused by the lack of earthing or failure to comply with the specifications in the respective diagrams.

- ⚠ The device is equipped with suppression filter as laid down by the applicable laws and standards. Use selective circuit breakers to compensate for the micro-dispersion on the earthing of this device.
- ⊖ It is forbidden the use of gas and water pipes for earthing the appliance.

Preliminary warnings for R32

- ⚠ R32 refrigerant gas is mildly flammable and odourless.
- ⚠ Do not place flammable objects (spray cans) within 1 metre of the air outlet.

- ⚠ All precautions concerning the treatment of the refrigerant must be observed following the regulations in force.
- ⚠ Avoid proximity to sources of ignition in continuous operation (open flames, gas appliances, electric stoves, lighted cigarettes, etc.).
- ⊖ Smoking in the vicinity of the appliance is prohibited.
- ⊖ Using a mobile phone near the appliance is prohibited.
- ⚠ Perform the following checks:
 - carry out safety checks to ensure that the risk of combustion is minimised
 - avoid working in confined spaces
 - delimit the area around the workspace
 - ensure safe working conditions around the area by controlling flammable material

3.12.2 Power line dimensioning

Use the tables below for the sizing of the power supply line and its protection device.

These are not average draw or transient peaks, but values to be considered for the correct sizing of the plant and the request of the contractual power (excluding loads due to the normal operation of the building).

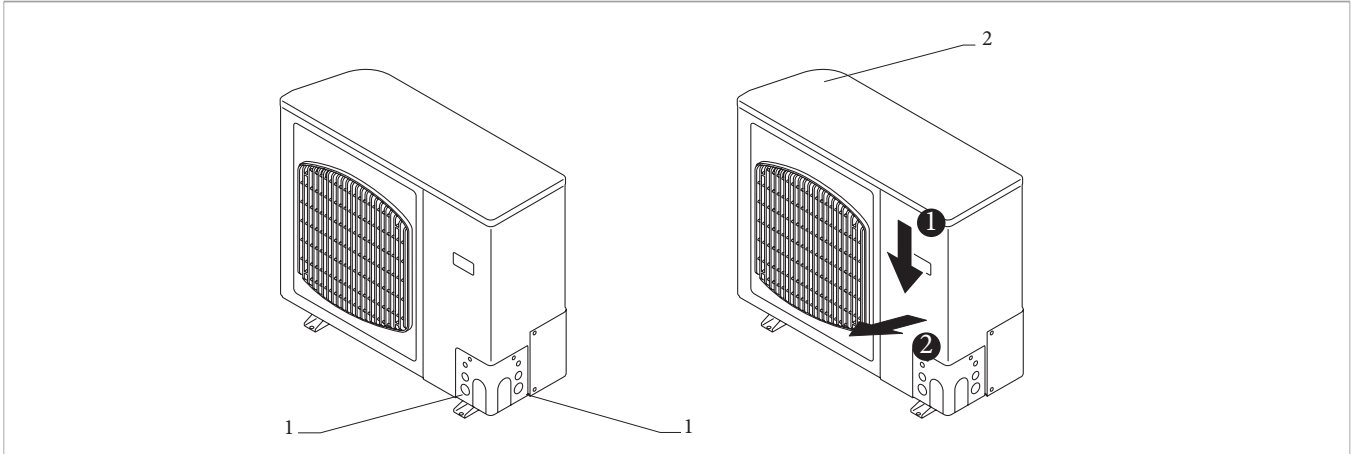
- ⚠ Maximum power is reached only in exceptional cases. Therefore, the indicated trip current is suggested to guarantee a balance between machine absorption and incidence in the general system.
- ⚠ The indicated minimum cable cross-section area must be verified according to the actual conditions of the installation: length of the cable, characteristics of the electrical supply, etc.

Models	m.u.	15-T	30-T
Electrical data of outdoor unit			
Power supply	V/ph/Hz	400/3/50	
Total maximum absorbed power	kW	5,0	9,0
Total current draw	A	7,22	12,99
Protection degree	IP	X4	X4
Total power absorbed at winter rated power output	kW	3,64	7,13
Total power absorbed at the summer rated power output	kW	4,04	6,36
Protection tripping current	A	16	20
Minimum wire cross-section area (A)	mm ²	4,0	6,0
Minimum wire cross-section area (B)	mm ²	1,50	0,35

- ⚠ To identify conductors A and B, please refer to "Connection diagram for models 15T - 30T" **p. 26**.

3.12.3 Access to the electrical panel

- 1. Electrical connection passage
- 2. Access panel



⚠ Access to the electrical panel is only permitted to qualified personnel.

⚠ Before carrying out any works, please ensure the power supply is disconnected.

To access the connections:
 ▶ remove the access panel

3.12.4 Connection

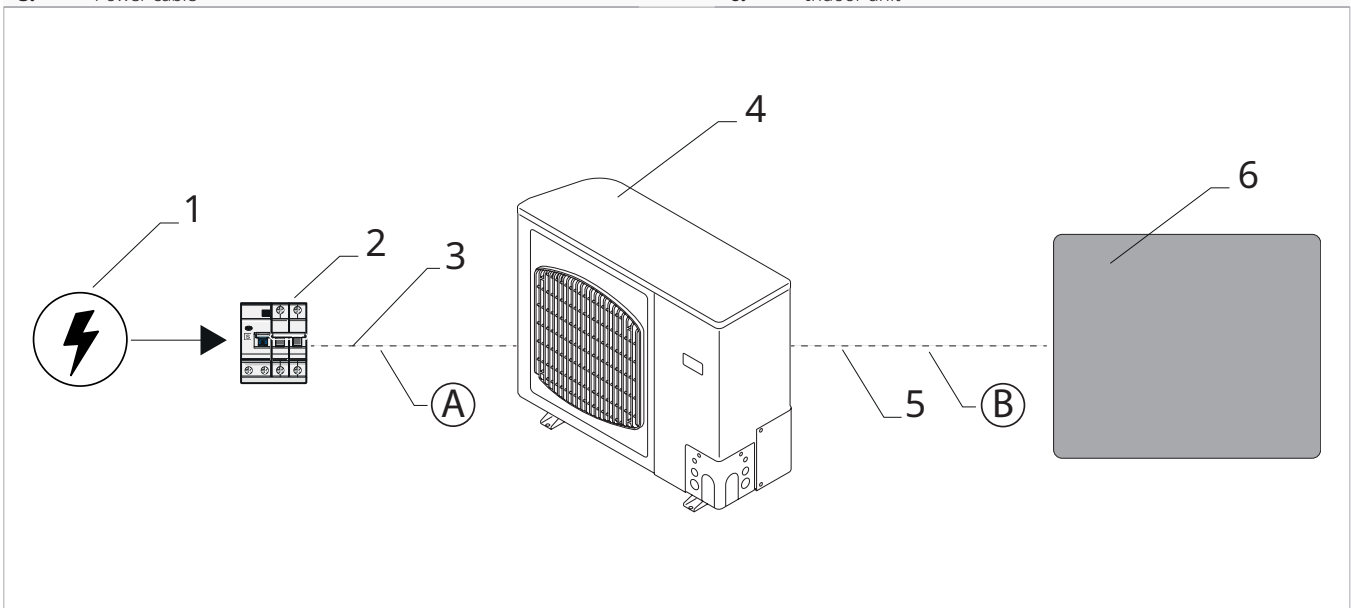
Before connecting the unit to the mains power supply, make sure that the disconnector is open. The power supply of the unit (three-phase) must be connected to the appropriate terminals, subject to the action of the disconnector.

⚠ Use properly sized cables to avoid voltage drops or overheating.

⚠ Before connecting to the terminals, read this manual and manual of the paired indoor unit carefully.

Connection diagram for models 15T - 30T

- | | |
|-------------------------------------|-----------------|
| 1. Unit power supply 400V AC | 4. Outdoor unit |
| 2. Protection switch (not supplied) | 5. Power line |
| 3. Power cable | 6. Indoor unit |



Connection

To make the connection:

- ▶ insert the connection cables through the cable fair-lead

- ▶ bring the connection cables nearer to the terminal blocks
- ▶ making the connections

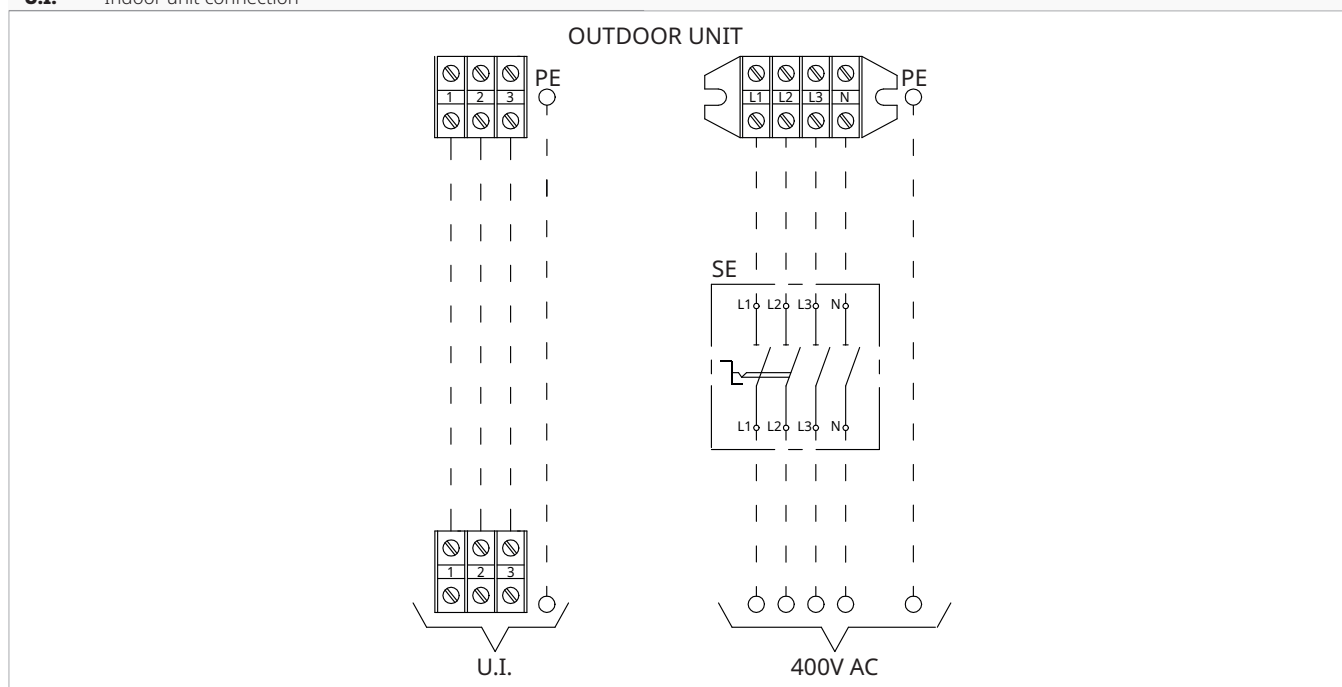
- ⚠ For more details please refer to the wiring diagram of the unit you are installing.
- ⚠ The power cable must be sized in accordance with the manual. It is recommended not to go below the minimum wire cross-sections indicated in the "Power line dimensioning" *p. 25* section.

⚠ Use a double-insulated multi-core cable mod. H07RNF for outdoor applications in cable duct, or mod. H05VVF for indoor applications.

Connecting terminal blocks for models 15T - 30T

Three-phase connection terminal blocks

N	Neutral	400V AC	Unit power supply
L1/L2/L3	Lines	SE	Protective switch
PE	Earth connection	OUTDOOR UNIT	Outdoor unit terminal block
U.I.	Indoor unit connection		



4. PUTTING IT INTO SERVICE

4.1 Preliminary warnings

- ⚠ This section is dedicated to the Authorised Service Centre. The features of the Authorised Service Centre are described in chapter "Recipients" p. 4.**
- ⚠ Refer to the manual of the paired indoor unit for the commissioning procedures.**
- ⚠ The customer must be present when the appliance is tested and informed of the contents of the manual and procedures. After commissioning, the manual and the warranty certificate must be handed over to the customer.
- ⚠ Before start-up, all work (electrical and plumbing connections, filling and venting of air from the plant) must be completed.

4.1.1 Preliminary warnings for R32

- ⚠ The unit uses environmentally friendly R32 refrigerant gas, with a Global Warming Potential (GWP) = 675. Do not release R32 gas into the atmosphere.
- ⚠ R32 refrigerant gas is mildly flammable and odourless.
- ⚠ Do not place flammable objects (spray cans) within 1 metre of the air outlet.
- ⚠ All precautions concerning the treatment of the refrigerant must be observed following the regulations in force.
- ⚠ Avoid proximity to sources of ignition in continuous operation (open flames, gas appliances, electric stoves, lighted cigarettes, etc.).
- ⊖ Smoking in the vicinity of the appliance is prohibited.

- ⊖ Using a mobile phone near the appliance is prohibited.
- ⚠ Perform the following checks:
 - carry out safety checks to ensure that the risk of combustion is minimised
 - avoid working in confined spaces
 - delimit the area around the workspace
 - ensure safe working conditions around the area by controlling flammable material

Leak detection

- ⊖ The use of combustion fluid detectors, e.g. a halide torch or other detection system using an open flame, is forbidden.
- ⚠ Follow the instructions below for leak detection:
 - use electronic detectors to detect flammable refrigerants
 - check that the detectors are properly calibrated before use
 - calibration operations must be carried out in an area free from refrigerant
 - make sure that the detector is not a potential source of combustion and that it is suitable for the refrigerant used
 - all open flames must be removed if a leak is suspected
 - in the event of a leak requiring brazing, it is mandatory to recover all the refrigerant from the system or isolate it (by means of shut-off valves) in a part of the system away from the leak
- ⚠ The use of silicone sealant may affect the effectiveness of some types of leak detectors.

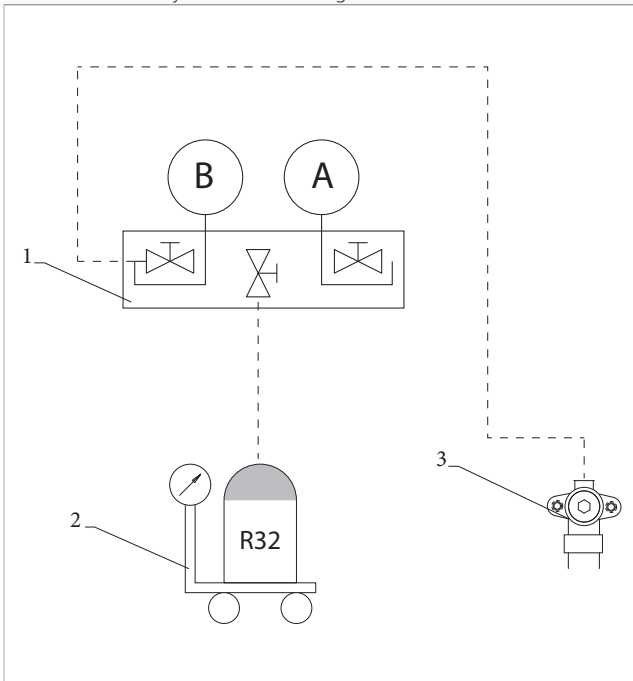
4.2 Additional refrigerant charge

The units are supplied with a charge of refrigerant gas sufficient for a predefined length of pipe connection. Additional refrigerant charge is required if the length is exceeded.

The default values are indicated in the table below:

Description	m.u.	15T - 30T
Length of connecting pipes without additional gas charge	m	< 30
Additional charge for meter of pipe between 30 and 100 m	g/m	80

A	High pressure
B	Low pressure
1.	Pressure gauge unit
2.	Electronic scale
3.	Three-way valve service fitting



For additional charging:

- ▶ connect the refrigerant cylinder to the pressure gauge unit
- ▶ open the taps of the pressure gauge unit
- ▶ open the tap of the cylinder liquid
- ▶ connect the filling pipe to the service fitting on the three-way shut-off valve
- ▶ remove air from the charging pipe
- ▶ load the refrigerant using an electronic scale
- ▶ Close the taps of the pressure gauge unit
- ▶ close the tap of the cylinder liquid
- ▶ disconnect the charging pipe from the service valve
- ▶ replace the three-way valve closing cap

- ⚠ Carefully check for leaks from the cap closing point.
- ⚠ Do not apply force beyond the stop point to avoid breaking the shaft and causing leaks of refrigerant as a consequence.
- ⚠ Use instrumentation suitable for the refrigerant in the system.
- ⚠ Use the refrigerant of the system only.
- ⚠ Any gas leaks inside the rooms can generate toxic gases in contact with open flames or bodies at high temperatures, in case of refrigerant leaks and ventilate the premises thoroughly.

4.2.1 Compilation of technical rating plate

According to EC Regulation No. 517/2014 on certain fluorinated greenhouse gases, it is mandatory to indicate the total amount of refrigerant present in the installed system. This information can be found on the rating plate of the outdoor unit.

In the case of an additional charge, the amount of the total charge given by the sum of the factory charge and the added charge must be indicated.

XXXXXXXXXXXXXXXXXXXX		N000035A
XXXXXXXXXXXXXXXXXXXX		
Mod:	XXXXXXXXXXXXXXXXXXXX	
Type:	XXXXXXXXXXXXXXXXXXXX	
Matr. (S/N):	XXXXXXXXXXXXXXXXXXXX	
Voltage / Alimentazione	XXXXXXXXXXXXXXXXXXXX	
Max electric input / Max corrente assorbita	XXXXXXX	XXXXX
Weight / Peso	XXXXXXX	
Nominal heating capacity	XXXXXXX	
Nominal cooling capacity	XXXXXXX	
GWP	XXXXXX	
Equivalent CO2 / CO2 equivalente	XXXXXXX	
Refrigerant fluid / Fluido frigorifero	R32A	XXXXXXX
Waterproof grade / Grado di protezione	IPX4	XXXXXX XXXXXX
Working pressure / Pressione d'esercizio		
Low / Minima XXXXXXXX High / Massima XXXXXXXX		
<div style="display: flex; align-items: center; justify-content: center;"> <div style="border: 1px solid black; padding: 2px 5px; font-weight: bold; font-size: 1.2em;">R32</div> <div style="margin: 0 5px;"> </div> <div style="margin: 0 5px;"> </div> <div style="margin: 0 5px;"> </div> </div>		
Contains fluorinated green house gas / Contiene gas serra fluorurati Manufactured by: Panasonic Corporation 1006 Kadoma, Kadoma City, Osaka, Japan		
<div style="display: flex; align-items: center; justify-content: center;"> <div style="margin-right: 10px;"> </div> <div style="margin-right: 10px;"> 1155 </div> <div style="margin-right: 10px;"> Model NO. XXXXXXXX Serial NO. XXXXXXXX </div> </div>		

To fill in the label:

- ▶ write the quantity on the label in permanent ink

5. MAINTENANCE

Routine maintenance is essential to keep the device efficient, safe, and reliable over time.

5.1 Preliminary warnings

⚠ This section is dedicated to the Authorised Service Centre. The features of the Authorised Service Centre are described in chapter "Recipients" p. 4.

⚠ This unit contains fluorinated greenhouse gases covered by the Kyoto Protocol. Maintenance and disposal operations must be carried out by qualified personnel only.

Before each cleaning and maintenance intervention:

- ▶ disconnect the device from the power supply by turning the system main switch to "OFF"
- ▶ wait for the components to cool down in order to avoid any burns

⊖ Carrying out any technical or cleaning work before disconnecting the unit from the power supply is forbidden.

⚠ Make sure that there is no voltage before operating.

⚠ After completing the maintenance work, the unit must be restored its original condition.

⚠ Handle refrigerant with care. Leaking refrigerant can cause freezing.

5.1.1 Preliminary warnings for R32

⚠ The unit uses environmentally friendly R32 refrigerant gas, with a Global Warming Potential (GWP) = 675. Do not release R32 gas into the atmosphere.

⚠ R32 refrigerant gas is mildly flammable and odourless.

⚠ Do not place flammable objects (spray cans) within 1 metre of the air outlet.

⚠ All precautions concerning the treatment of the refrigerant must be observed following the regulations in force.

⚠ Check that there are no sources of ignition in continuous operation (open flames, gas appliances, electric stoves, lighted cigarettes, etc.).

⊖ Smoking in the vicinity of the appliance is prohibited.

⊖ Using a mobile phone near the appliance is prohibited.

⚠ Perform the following checks:

- carry out safety checks to ensure that the risk of combustion is minimised
- avoid working in confined spaces
- delimit the area around the workspace
- ensure safe working conditions around the area by controlling flammable material

Leak detection

⊖ The use of combustion fluid detectors, e.g. a halide torch or other detection system using an open flame, is forbidden.

⚠ Follow the instructions below for leak detection:

- use electronic detectors to detect flammable refrigerants
- check that the detectors are properly calibrated before use
- calibration operations must be carried out in an area free from refrigerant
- make sure that the detector is not a potential source of combustion and that it is suitable for the refrigerant used
- all open flames must be removed if a leak is suspected
- in the event of a leak requiring brazing, it is mandatory to recover all the refrigerant from the system or isolate it (by means of shut-off valves) in a part of the system away from the leak

⚠ The use of silicone sealant may affect the effectiveness of some types of leak detectors.

5.2 Once-a-year operations

The once-a-year maintenance plan includes the following operations and checks and must be carried out by the Authorised Service Centre or by qualified personnel.

5.2.1 Routine maintenance of the unit

Electric circuit

Check:

- electrical supply voltage
- electric draw

- tightness of connections
- that there is no damage or excessive wear on the electrical cables
- the seals and sealing materials have not deteriorated to such an extent that they are no longer suitable for preventing the development of flammable atmospheres inside
- correct fixing of the cable clamps
- safety devices

Mechanical checks

Check:

- the tightness of the screws, the compressors and the electrical box and the external panelling of the unit
- the conditions of the structure

⚠ Poor fastenings cause abnormal noises and vibrations.

⚠ Treat any rusty parts with paints suitable to eliminate or reduce the rust.

Other recommended checks:

- tightening of terminals
- clean the air heat exchanger coil
- check of safety devices
- electrical draw checks
- check of thermodynamic values

Refrigeration checks

Under the provisions of Directive 517/2014/EU, plants containing more than 5 equivalent tonnes of CO₂ (7.41 kg of R32 gas or 2.39 kg of R410a gas) must be checked for leaks once a year, using either direct or indirect methods, by personnel certified under EU Regulation 2015/2067.

The company responsible for maintenance must keep a logbook in which the following information is recorded:

- the technician who performed the maintenance or repair,
- the dates and results of the checks,
- the quantity and type of fluorinated gas used,
- any quantities added or recovered during servicing, repair or final disposal.




⚠ Filling the refrigeration circuit with a refrigerant other than the one indicated is forbidden. Using a different refrigerant gas can cause serious damage to the unit.

Cleaning

- clean cosmetic covering elements

6. TROUBLESHOOTING

6.1 Preliminary warnings

-  **Refer to the manual of the indoor unit for troubleshooting and solutions.**
-  Interventions must be carried out by a qualified installer or a specialised Technical Assistance Centre.
-  Do not intervene personally.

7. TECHNICAL INFORMATION

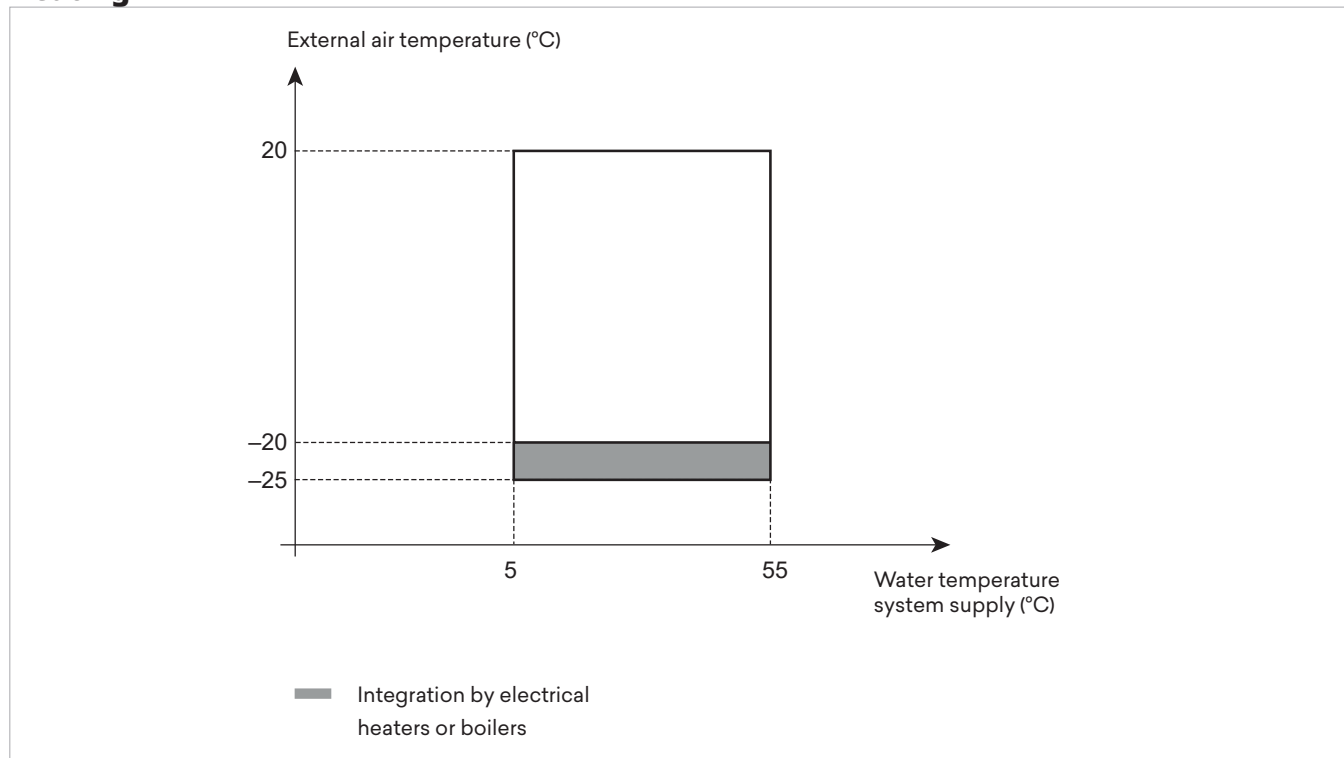
7.1 Technical data

Models	m.u.	15	30
Aeraulic performance in heating			
Maximum air flow	m ³ /h	4980	8880
Aeraulic performance in cooling			
Maximum air flow	m ³ /h	5340	6960
Compressor			
Type		Rotary inverter	
Number	Nr.	1	1
Type of refrigerant		R32	
Quantity of refrigerant	kg	3,00	5,20
Sound levels in warm-up			
Sound power transmitted to the structure L _w	dB(A)	76,0	82,0
Average sound pressure at 1 m L _p	dB(A)	56,0	63,0
Sound levels in cooling			
Sound power transmitted to the structure L _w	dB(A)	76,0	76,0
Average sound pressure at 1 m L _p	dB(A)	56,0	57,0
Electrical characteristics			
Power supply	V/ph/Hz	400/3/50	
Total maximum absorbed power	kW	5,0	9,0
Total current draw	A	7,22	12,99
Protection degree	IP	X4	X4
Total power absorbed at winter rated power output	kW	3,64	7,13
Total power absorbed at the summer rated power output	kW	4,04	6,36
Heating limits			
Minimum external air temperature	°C	-20	-20
Maximum external air temperature	°C	24	24
Cooling limits			
Minimum external air temperature	°C	-5	-5
Maximum external air temperature	°C	46	46
Product dimensions			
Width	mm	980	1140
Depth	mm	370	460
Height	mm	996	996
Weight	kg	84,0	109,0
Connections			
Liquid fitting	"SAE	3/8	1/2
Gas fitting	"SAE	5/8	7/8 solder

⚠ Performance data can be found in the manual of the paired indoor unit.

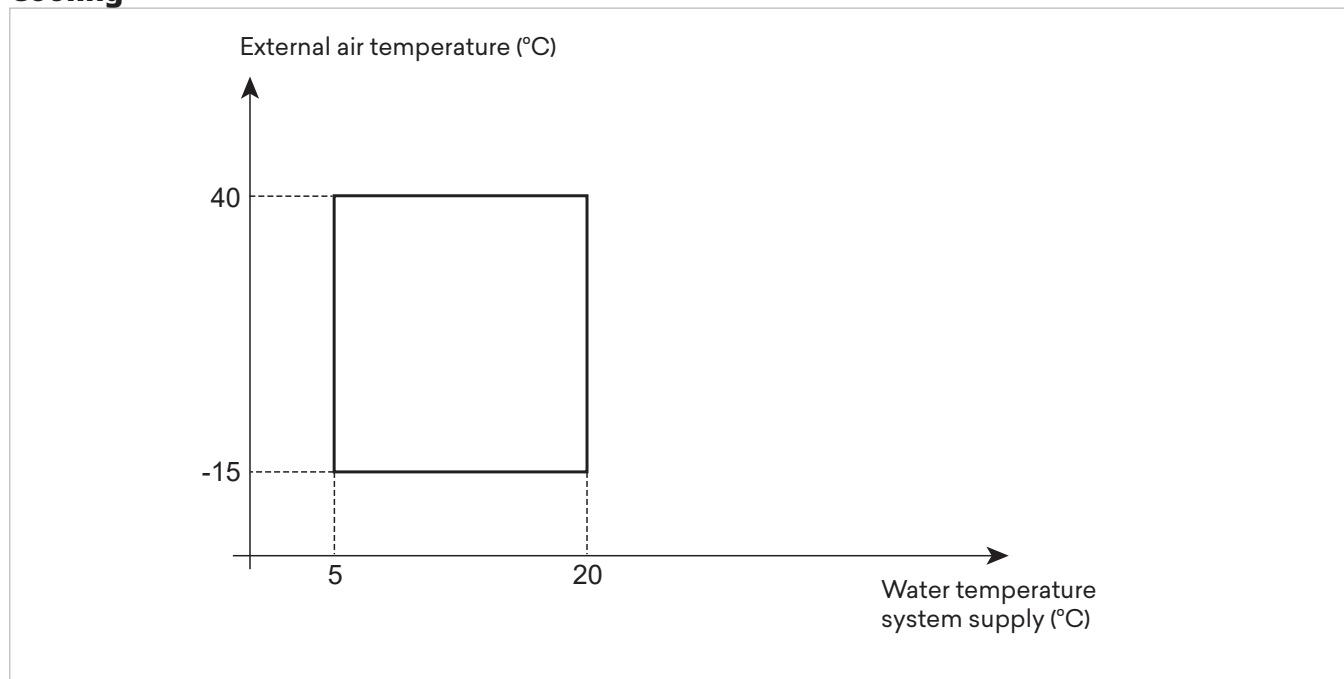
7.2 Operating limits

Heating



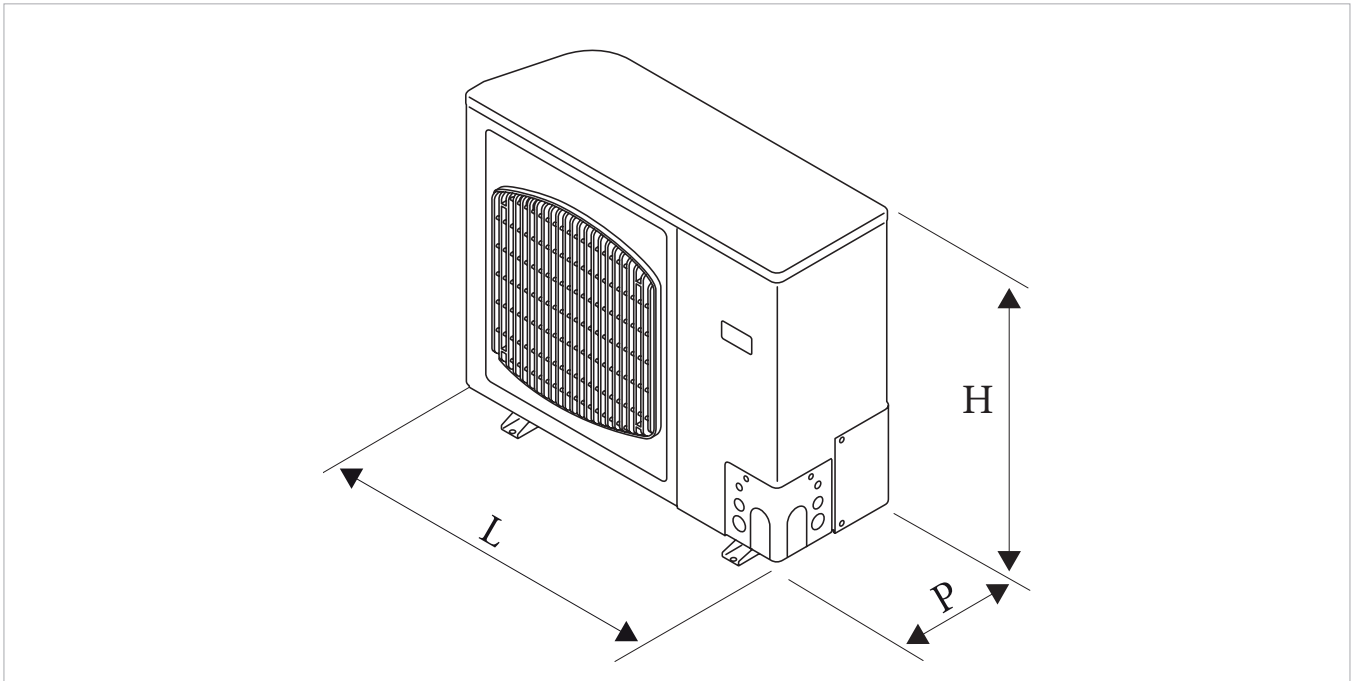
⚠ The area represented by the graph is simplified. It may be more advantageous depending on outdoor and working conditions.

Cooling



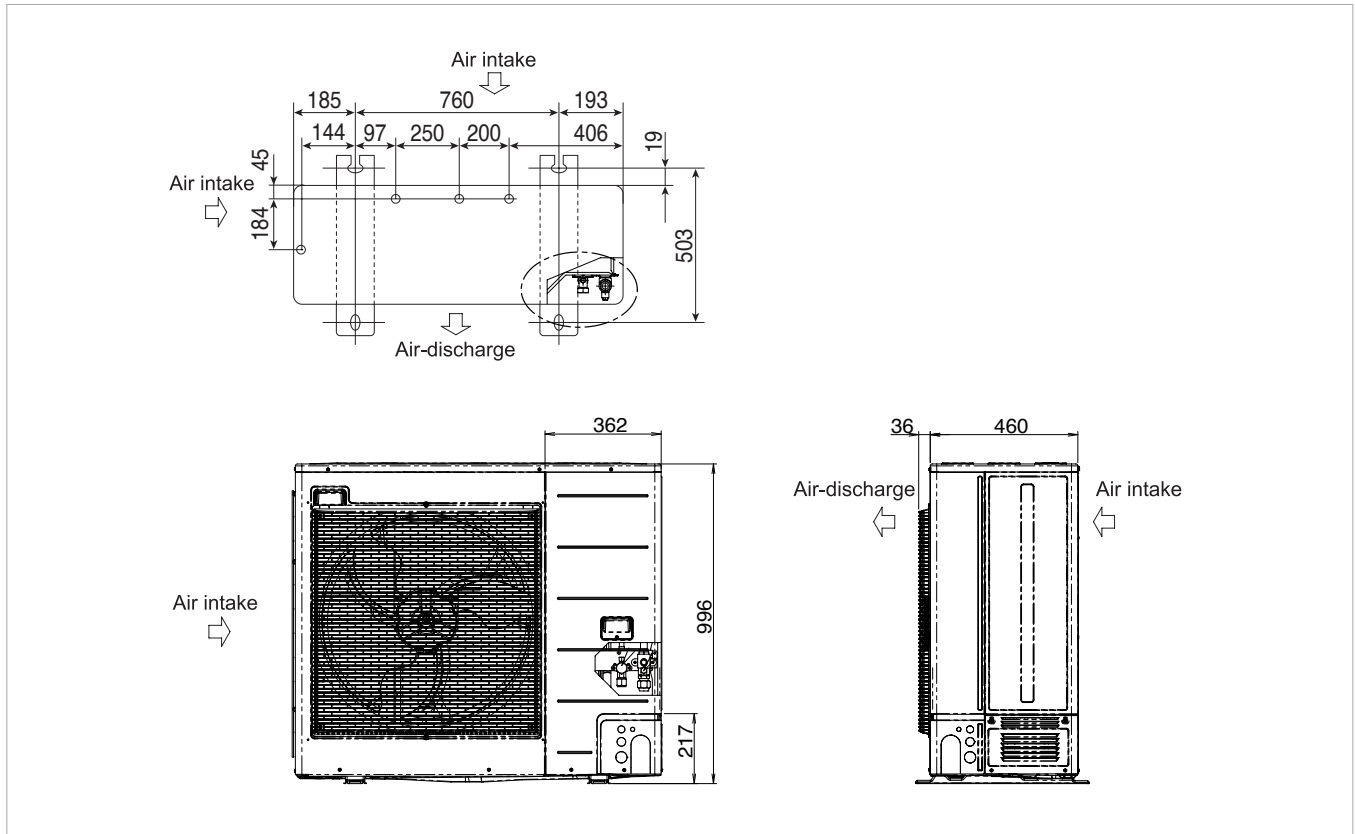
*Unit may also work at higher external temperatures, depending on the operating conditions and internal parameters.

7.3 Dimensions

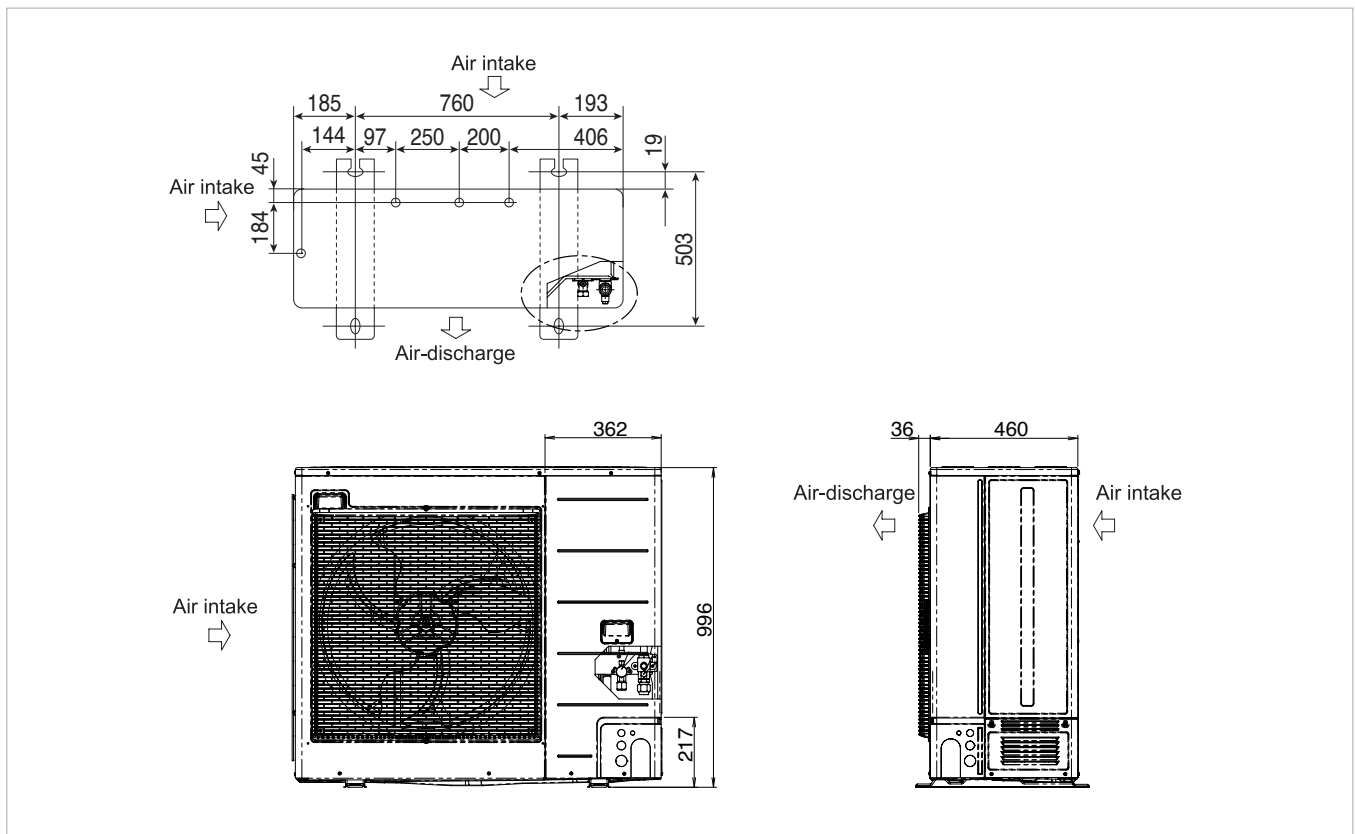


Models	m.u.	15	30
Dimensions and weights of outdoor unit			
Width	mm	980	1140
Height	mm	996	996
Total depth	mm	370	460
Net weight	kg	84,0	109,0

7.3.1 Model 15T

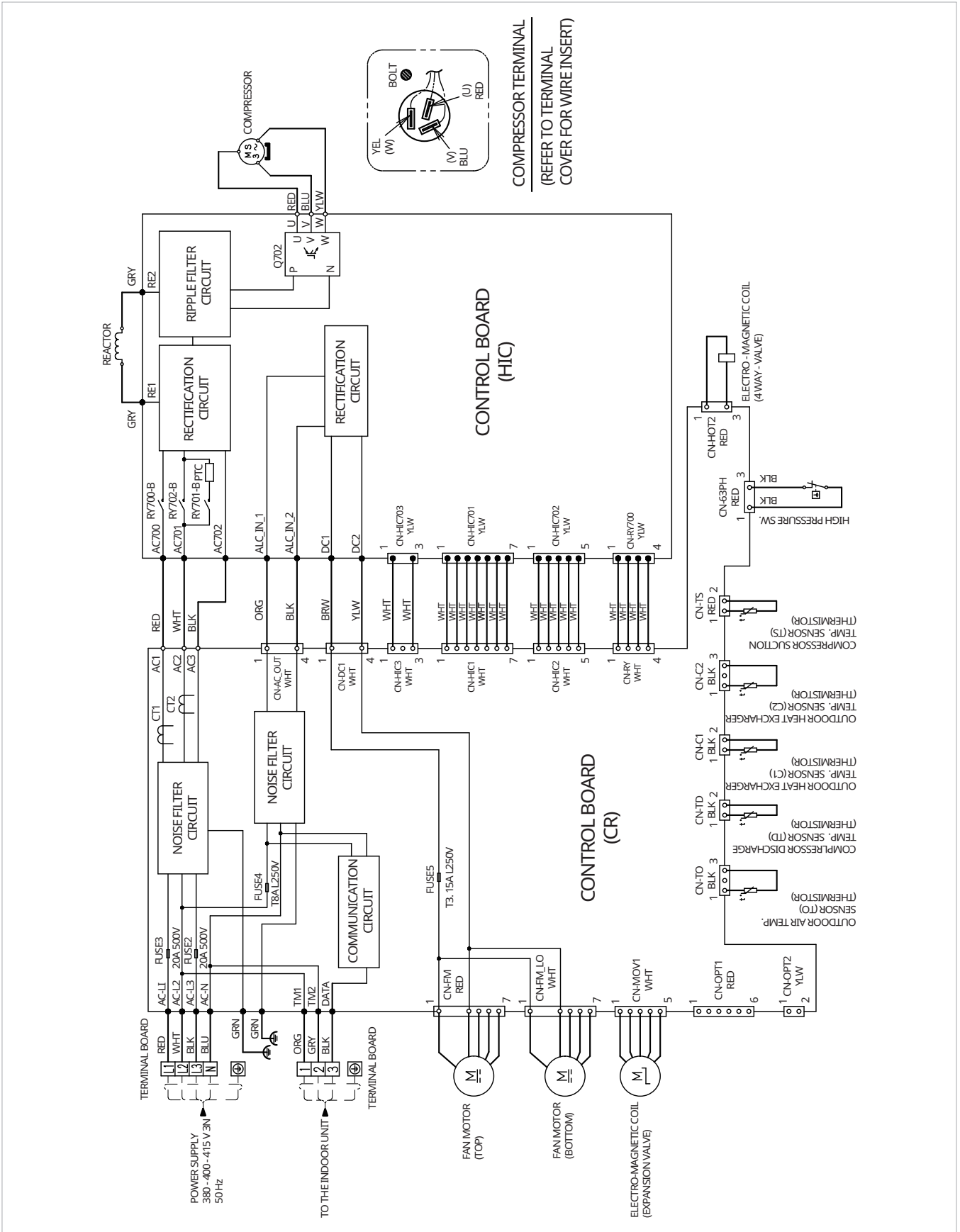


7.3.2 Model 30T



7.4 Electrical diagrams

7.4.1 Models 15T - 30T



8. SYSTEM LOG BOX

8.1 System log box



01. Registro dell'impianto

Obbligo di documentazione

Tutti gli interventi eseguiti sulla pompa di calore, come manutenzione, riparazione o prova di tenuta, devono essere documentati e la relativa documentazione deve essere conservata per cinque anni.
Questo obbligo si applica ai conduttori e alle ditte che eseguono l'intervento.

Il registro deve riportare i seguenti dati:

- ← Dettagli su tutti i lavori di manutenzione e di riparazione
- ← Tipo di refrigerante utilizzato (nuovo, rigenerato, riciclato), oltre che la quantità richiesta dall'impianto
- ← I risultati dell'analisi del refrigerante rigenerato, se disponibili
- ← L'origine del refrigerante rigenerato
- ← Modifiche e sostituzione di componenti dell'impianto
- ← Risultati di tutte le verifiche di routine eseguite regolarmente
- ← Tempi di fermo particolarmente lunghi

Smontaggio della pompa di calore e smaltimento del refrigerante

Lo smontaggio della pompa di calore e lo smaltimento del refrigerante in essa contenuto devono essere realizzati esclusivamente da personale tecnico certificato / tecnici della refrigerazione, secondo i regolamenti CE 842/2006, 303/2008 e 517/2014.



02. Registro dell'impianto

I seguenti dati relativi all'impianto vanno documentati:

- Dati dell'impianto
- Tipo e caratteristiche dell'acqua di riempimento
- Prove di tenuta, perdita specifica refrigerante / tasso di perdita
- Rapporti su riparazioni e manutenzioni
- Quantità di refrigerante

Dati dell'impianto:

Nome del conduttore dell'impianto _____

Indirizzo _____

Luogo dell'installazione _____

Numero di telefono del conduttore dell'impianto _____

Tipo di pompa di calore: _____

Numero di serie _____

Anno di costruzione _____

Messa in servizio _____

Refrigerante/quantità _____

Acquisire i dati di cui sopra dall'etichetta dell'apparecchio.

Tipo e caratteristiche dell'acqua di riempimento:

Acqua di acquedotto con grado di durezza _____ °dH

Acqua di riscaldamento ai sensi della VDI 2035 trattata con

Conducibilità dell'acqua di riempimento _____ µS/cm

Luogo, data

timbro aziendale, firma

03. Registro dell'impianto

Sul circuito frigorifero della pompa di calore sono stati eseguiti i seguenti interventi di manutenzione e prove di tenuta ai sensi della normativa (del regolamento (CE) n. 303/2008 - Categoria I):

Data	- Risultati della manutenzione - Refrigerante prelevato / aggiunto (in kg) - Prova di tenuta eseguita	Nome dell'azienda specializzata / installatore certificato	Firma del tecnico specializzato



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