



**MOD : AN120M-1C-R2**

**Production code : BYWS251LA10P11-DI**

**05/2025**

## Wall-mounted packaged unit for cold rooms

### Instruction manual| v. 02

Instructions translated from the original



CE EAC



**DANGER!** Anyone who uses this machine is required to read these instructions for their own safety.

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## Conformity

### Declaration of conformity

Conformity  

Directives List of Directives for which the product is declared to be conforming:

- 2014/68/EU (Pressure Equipment Directive)
- 2014/35/EU (Low Voltage Directive)
- EMC 2014/30/EU (Electromagnetic Compatibility Directive)
- 2006/42/EC (Machinery Directive)
- RED 2014/53/EU (Radio Equipment Directive)

**Note:** the original declaration of conformity accompanies the machine.

# 1. Introduction

This section includes the following topics:

- 1.1 Identification data ..... 4
- 1.2 Information about the instruction manual .. 4

## 1.1 Identification data

### 1.1.1 Manufacturer's contacts

DIAMOND EUROPE

Chaussée de Vilvorde 92

1120 Bruxelles - Belgique

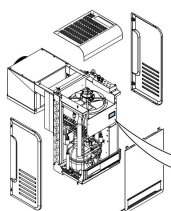
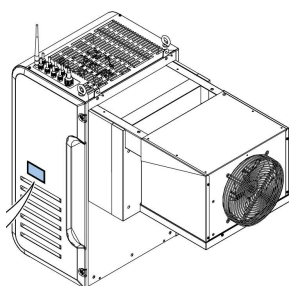
info@diamond-eu.com

Tel : +32 (0)2 420 26 26

Fax : +32 (0)2 420 67 66

### 1.1.2 Identification

The information on the identification plates is important for requesting assistance, maintenance or spare parts.



### 1.1.3 Code legend

|                   |                                                                                                                                                                                                              |
|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>BE</b>         | Range. <b>BE</b> : BEST                                                                                                                                                                                      |
| <b>WT/WS</b>      | <b>WT</b> (trough wall): with plug-in insulating panel fitted or removed<br><b>WS</b> : wall saddle                                                                                                          |
| <b>25/ 30/ 35</b> | Housing/frame dimensions. <b>25</b> : for condensing unit fan with a 254 mm diameter, <b>30</b> : for condensing unit fan with a 300 mm diameter, <b>35</b> : for condensing unit fan with a 350 mm diameter |
| <b>1/ 2</b>       | Number of compressors                                                                                                                                                                                        |
| <b>M/L/V</b>      | Application. <b>M</b> : medium temperature, <b>L</b> : low temperature, <b>V</b> : variable speed                                                                                                            |
| <b>A/W</b>        | Type of condensing. <b>A</b> : air <b>W</b> : water                                                                                                                                                          |

|                |                                                                                     |
|----------------|-------------------------------------------------------------------------------------|
| <b>05 - 80</b> | Progressive number that identifies the different power outputs                      |
| <b>P</b>       | Refrigerant gas. <b>P</b> : R290                                                    |
| <b>1/ 2</b>    | Laminating part. <b>1</b> : mechanical thermostat, <b>2</b> : electronic thermostat |
| <b>1/ 2</b>    | Voltage. <b>1</b> : onephase, <b>2</b> : three-phase                                |
| <b>00</b>      | Sequential number for optionals                                                     |

## 1.2 Information about the instruction manual

### 1.2.1 Objectives of the instruction manual

These instructions guide the personnel in charge of installing, using and servicing the packaged unit safely.

### 1.2.2 Obligations with respect to this instruction manual

**NOTICE: This instruction manual is an integral part of the packaged unit and must be kept for its entire life cycle.**

*It must be stored in a clean place and kept in good condition to be accessible to the operators. If the manual is lost or damaged, contact RIVACOLD srl.*

*If the packaged unit is transferred, always attach the instruction manual.*

### 1.2.3 Data of the instruction manual

Packaged unit: .

Title: Instruction manual

Code: 9600-0175

Month and year of publication: 08-2024

Type of manual: translation of original instructions

### 1.2.4 Safety messages

Below are the warnings related to user safety and damage to the machine provided in this document:

#### **DANGER!**

Indicates a hazardous situation which, if not avoided, will result in death or serious injury.

#### **WARNING**

Indicates a hazardous situation which, if not avoided, can result in death or serious injury.

#### **CAUTION**

Indicates a hazardous situation which, if not avoided, can result in minor injury.

## NOTICE

*Indicates obligations which, if not complied with, can damage the device.*

### 1.2.5 Other messages

**Note:** neutral and positive information that emphasizes or adds information to the main text. It provides information that can only be applied in special cases.

### 1.2.6 Figures and illustrations

The figures and illustrations in this instruction manual are only used for reference and may differ in detail and proportions from the actual product.

### 1.2.7 Updates of the instruction manual

| Code      | Publication date | Updates            |
|-----------|------------------|--------------------|
| 9600-0175 | 08-2024          | Second publication |
|           | 12-2020          | First publication  |

### 1.2.8 Documentation provided

| Manual                                 | Recipients                                                      | Code                | Date    |
|----------------------------------------|-----------------------------------------------------------------|---------------------|---------|
| Instruction manual (this manual)       | The personnel indicated in "Personnel skills" on the next page. | 9600-0175           | 08-2024 |
| Installation Manual                    |                                                                 | 9600-0134           |         |
| Controller Manual                      |                                                                 | 9600-0173/9600-0178 | 2024    |
| Electrical diagram                     |                                                                 | -                   | -       |
| IoT Activation Instructions (optional) |                                                                 | 9600-0073           | 2022    |

## 2. Safety

This section includes the following topics:

|                                   |   |
|-----------------------------------|---|
| 2.1 Generic safety warnings ..... | 5 |
| 2.2 Personnel skills .....        | 6 |
| 2.3 Residual risks .....          | 7 |
| 2.4 Safety labels .....           | 8 |
| 2.5 Fixed guards .....            | 9 |
| 2.6 Noise .....                   | 9 |

### 2.1 Generic safety warnings

#### 2.1.1 Foreword

The packaged unit is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities or lacking experience and knowledge, unless they are supervised or instructed in the use of the unit by a person responsible for their safety.

Keep children away from the packaged unit.

#### 2.1.2 Obligations for the employer

The employer must select, train and appoint authorised personnel to carry out their duties.

It is the employer's responsibility to instruct the personnel in charge and to enforce the safety regulations for every specific task. The employer must also define the operating procedures and ensure that they comply with the instruction manual provided by the manufacturer. See "Personnel skills" on the next page for more information.

#### 2.1.3 Obligations for the recipients of the instruction manual



**NOTICE:** anyone who uses this packaged unit is obliged to read this instruction manual for their own safety.

#### 2.1.4 Recipients of this instruction manual

This instruction manual is intended for personnel authorised by the employer to install, use and service the packaged unit.

## 2.1.5 Clothing



Do not wear loose clothing, ties, chains and watches that can get caught in the moving parts.

## 2.1.6 Personal protective equipment



During lifting and transport



During installation and commissioning



During use



During maintenance or dismantling



## 2.2 Personnel skills

### 2.2.1 Foreword

Every section of this instruction manual is preceded by the skills that the personnel in question must have. Not having these skills can:

- endanger the safety of personnel
- invalidate the warranty

**Note:** the operator's tasks are defined by the complexity of the operations and their level of experience and skill. Operators must collaborate with the technicians to receive operating instructions or to request adjustment operations.

### 2.2.2 List of skills

| Symbol                                                | Operations allowed                                                                                                                                                                                                                                                                  | Skills                                                                                                                                                                                                                        |
|-------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <br><b>COMPANY</b><br><b>Manufacturer's personnel</b> | All operations                                                                                                                                                                                                                                                                      | Technical personnel employed or authorised by the manufacturer.                                                                                                                                                               |
| <br><b>Mechanical maintenance engineer</b>            | <ul style="list-style-type: none"> <li>• Installation and decommissioning</li> <li>• Maintenance excluding works on the electrical system</li> <li>• Solving problems that cause blockages</li> </ul>                                                                               | <p>Has extensive technical knowledge in the mechanical and pneumatic fields.</p> <p>Understands the technical drawings and the refrigerating diagram.</p>                                                                     |
| <br><b>Electrical maintenance engineer</b>            | <ul style="list-style-type: none"> <li>• Electrical connections during installation and decommissioning</li> <li>• Solving problems that cause faults in the electrical system</li> </ul>                                                                                           | <p>Has extensive technical knowledge in the electrical field. Understands the wiring diagrams and works inside live electrical boxes, junction boxes and control equipment.</p> <p>Understands the refrigerating diagram.</p> |
| <br><b>Operator</b>                                   | <ul style="list-style-type: none"> <li>• Operate using the controls</li> <li>• Clean the packaged unit</li> <li>• Adjust the equipment after receiving the relevant instructions</li> <li>• Change certain parameters but only after receiving the relevant instructions</li> </ul> | Has generic technical knowledge and experience in managing the packaged unit.                                                                                                                                                 |

| Symbol                                                                                             | Operations allowed   | Skills                                                                                                                            |
|----------------------------------------------------------------------------------------------------|----------------------|-----------------------------------------------------------------------------------------------------------------------------------|
| <br><b>Driver</b> | Lifting and handling | Authorised to use means to lift and handle materials and equipment according to the laws in force in the country of installation. |

## 2.3 Residual risks

### 2.3.1 Definition

A danger zone is any area inside or outside the packaged unit where a person is exposed to the risk of serious or minor injuries.

Every procedure described in this instruction manual indicates the possible risks. Always follow the instructions in the instruction manual to avoid damage or injury.

- Follow the warnings given in this instruction manual concerning installation.
- Follow the instructions for adjustment, cleaning and maintenance given in this instruction manual.

### 2.3.2 Foreword

The packaged unit has been designed and built to function, be adjusted and subjected to maintenance without these operations exposing the personnel in charge to risks if carried out according to the instructions given in this instruction manual. The adopted measures minimise the risk of accidents throughout the life cycle of the packaged unit, both in the context of the intended use and of reasonably foreseeable misuse.

### 2.3.3 Mechanical residual risks

| Risk                                | When it occurs                                                | How to avoid it                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-------------------------------------|---------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Bruising and superficial abrasion   | During installation, cleaning, maintenance and dismantling.   | Wear the personal protective equipment.                                                                                                                                                                                                                                                                                                                                                                                                       |
| Crushing                            | During transportation, lifting, installation and dismantling. | <ul style="list-style-type: none"> <li>• Always use lifting equipment and accessories of adequate capacity for the load to be lifted.</li> <li>• Prevent unauthorised people from accessing the area near the packaged unit.</li> <li>• Follow the warnings given in this instruction manual concerning lifting.</li> <li>• Check that the wall where the packaged unit is installed is suitable for supporting the packaged unit.</li> </ul> |
| Falling from above                  | During installation, maintenance at a height and dismantling. | Always use adequate means and accessories.                                                                                                                                                                                                                                                                                                                                                                                                    |
| Impact                              | During installation, cleaning and maintenance.                | Wear the personal protective equipment.                                                                                                                                                                                                                                                                                                                                                                                                       |
| High pressure fluid ejection        | During maintenance and dismantling.                           | Maintenance on pressurised circuits must only be performed by the mechanical maintenance engineer.                                                                                                                                                                                                                                                                                                                                            |
| Contact with moving and sharp parts | During maintenance.                                           | <ul style="list-style-type: none"> <li>• Wear the personal protective equipment.</li> <li>• Isolate the packaged unit from the power supply.</li> </ul>                                                                                                                                                                                                                                                                                       |

### 2.3.4 Electrical residual risks

| Risk          | When it occurs                                                | How to avoid it                                                                                                                                                                                                 |
|---------------|---------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Electrocution | During installation, connection, maintenance and dismantling. | <ul style="list-style-type: none"> <li>The electrical connection and disconnection must only be carried out by the electrical maintenance engineer.</li> <li>Wear the personal protective equipment.</li> </ul> |

### 2.3.5 Thermal residual risks

| Risk             | When it occurs                       | How to avoid it                                                                                                                                                                                                                                                                           |
|------------------|--------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Low temperatures | During maintenance in the cold room. | <ul style="list-style-type: none"> <li>Wear the personal protective equipment.</li> <li>Follow the instructions for adjustment, cleaning and maintenance given in this instruction manual.</li> <li>Take work breaks to prevent long exposure to excessively low temperatures.</li> </ul> |
| Burns            | During and immediately after use.    | Wear the personal protective equipment.                                                                                                                                                                                                                                                   |

### 2.3.6 Chemical residual risks

| Risk               | When it occurs                                                         | How to avoid it                                                                                                   |
|--------------------|------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|
| Explosion and fire | During transport and handling, installation, cleaning and maintenance. | Follow the regulations in force and the warnings on adjustments and maintenance given in this instruction manual. |
| Burns              | During transport and handling, installation, cleaning and maintenance. | Follow the regulations in force and the warnings on adjustments and maintenance given in this instruction manual. |

## 2.4 Safety labels

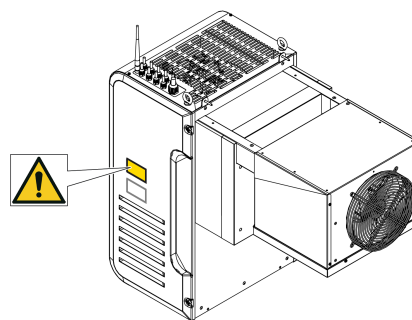
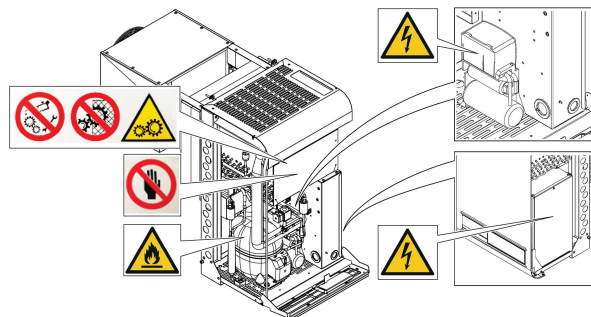
### 2.4.1 Generic warnings

Clean the labels if dirty and replace them if detached or damaged.

DO NOT apply other labels or notes that can hide the indications affixed by the manufacturer or make them partially illegible.

### 2.4.2 Position of the safety stickers

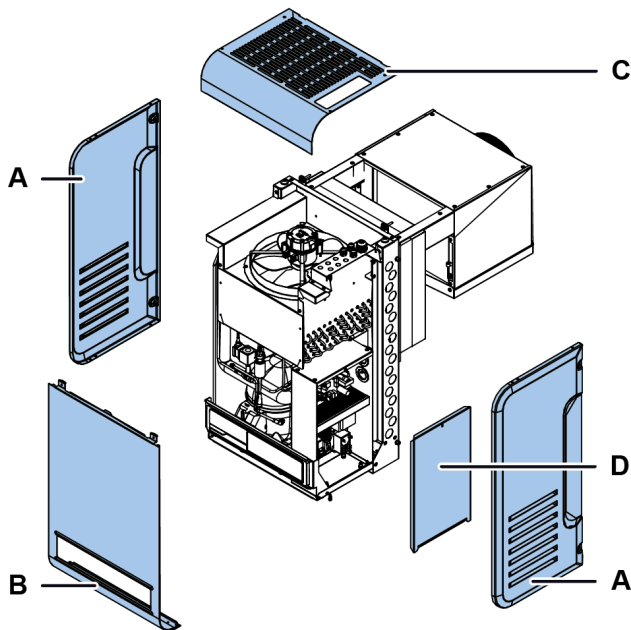
The position of the stickers is as follows:



| Symbol | Description                                               |
|--------|-----------------------------------------------------------|
|        | Do not repair moving parts                                |
|        | Do not remove safety devices                              |
|        | Do not clean the condenser by hand                        |
|        | Moving parts                                              |
|        | Flammable gas                                             |
|        | Electrocution                                             |
|        | Disconnect the power supply before performing maintenance |

## 2.5 Fixed guards

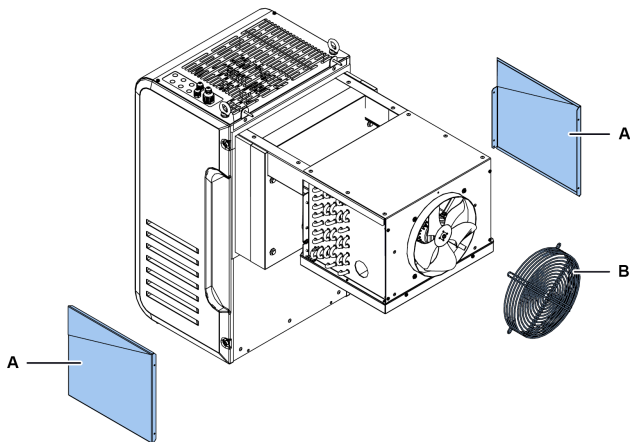
### 2.5.1 Condensing unit



| Part | Description          |
|------|----------------------|
| A    | Side panel           |
| B    | Front panel          |
| C    | Top panel            |
| D    | Electrical box panel |

### 2.5.2 Evaporating part

The fixed guards of the evaporating part consist of the side panels **[A]** and the grid **[B]**.



| Part | Description |
|------|-------------|
| A    | Side panel  |
| B    | Grid        |

## 2.6 Noise

### 2.6.1 Sound pressure level

The sound pressure measured while the packaged unit is running is less than 70 dB(A) LEX and/or 135 dB(C) Lpeak.

## 3. Learning about the packaged unit for cold rooms

This section includes the following topics:

|                                            |    |
|--------------------------------------------|----|
| 3.1 Limits of use .....                    | 10 |
| 3.2 Overview .....                         | 10 |
| 3.3 Description of the packaged unit ..... | 10 |
| 3.4 Packaged unit operation .....          | 12 |

### 3.1 Limits of use

#### 3.1.1 Intended use

is an indoor wall-mounted packaged unit for cold room refrigeration. It is available with air- and water-cooled condensing as well as in the Water Loop version, and can be installed as a buffer or overlapping.

#### 3.1.2 Unintended use

This packaged unit has been designed for all the uses declared in "Intended use" above.

In particular, with this packaged unit it is NOT possible to:

- Install the packaged unit on a sloping or horizontal wall
- Install the packaged unit on a wall with different structural characteristics than those intended
- Install the packaged unit on a ceiling or floor
- Install the packaged unit in a cold room with different characteristics from those intended
- Use a different refrigerant gas than that intended
- Use the packaged unit without the protections
- Apply labels or notes that can hide the indications provided with the packaged unit or make them partially illegible
- Tamper with the electrical equipment and/or safety devices
- Set the packaged unit with different values than those indicated by the manufacturer
- Climb on or cling to the packaged unit

#### 3.1.3 Work environment

The packaged unit CANNOT be used in the following conditions:

- Environments with a potentially explosive atmosphere (ATEX)
- Environments with vapours deriving from chemical processes
- Environments with the presence of radiation (ionizing and non)
- Ambienti con temperatura diverse dall'intervallo che va da +41 °F a +110 °F
- Environments subject to potential fire hazards (see the local standards and regulations applied at national level)
- Environments with poor ventilation

- Outdoors (installation), exposed to the atmospheric agents

### 3.2 Overview

#### 3.2.1 Packaged unit configurations

The packaged unit is available in different configurations. The variants are:

- type of installation: wall straddle, with plug-in insulating panel removed and with plug-in insulating panel fitted
- refrigeration temperature range:
  - NT (normal temperature):  $-5\text{ °C} \leq T_{\text{cold room}} \leq +15\text{ °C}$
  - LT (low temperature):  $-25\text{ °C} \leq T_{\text{cold room}} \leq -5\text{ °C}$

#### 3.2.2 Circuits of the packaged unit

Depending on the model, the packaged unit can be single-circuit or dual-circuit. The circuits are totally independent of each other. Every circuit is a compact and hermetically sealed system in accordance with the definitions set forth in UNI EN 378-1. The amount of refrigerant for every circuit is  $\leq 150\text{ g}$  to allow installation to take place anywhere without restrictions, as required by the reference standard.

**Nota:** RIVACOLD srl cannot be held liable for any restrictions due to national or regional regulations or laws.

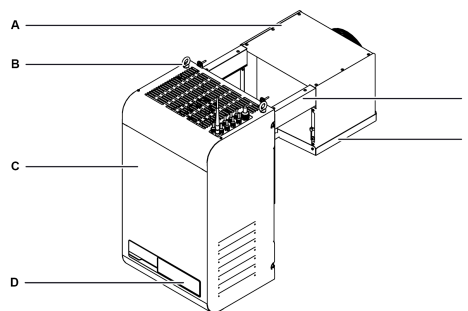
#### 3.2.3 Optional extras

The packaged unit options are as follows:

- control panel with remote interface
- cataphoresis coils
- IoT Kit

### 3.3 Description of the packaged unit

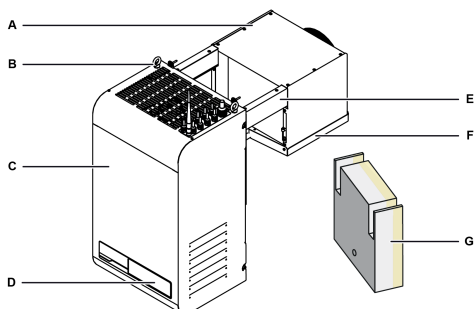
#### 3.3.1 BEST WS components for saddle installation



| Part | Description      |
|------|------------------|
| A    | Evaporating part |
| B    | Eyebolts         |

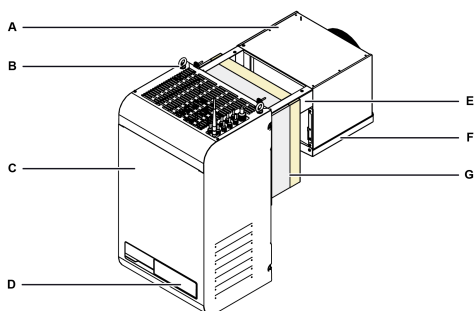
| Part     | Description          |
|----------|----------------------|
| <b>C</b> | Condensing unit part |
| <b>D</b> | Control panel        |
| <b>E</b> | Brackets             |
| <b>F</b> | Evaporator tray      |

### 3.3.2 BEST W components for installation with plug-in insulating panel removed



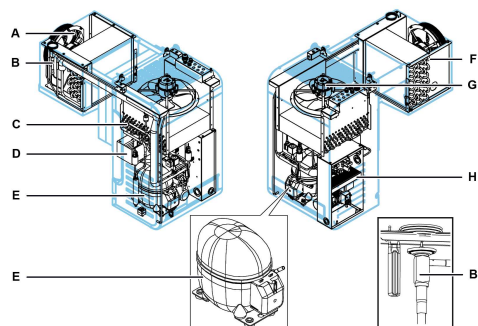
| Part     | Description              |
|----------|--------------------------|
| <b>A</b> | Evaporating part         |
| <b>B</b> | Eyebolts                 |
| <b>C</b> | Condensing unit          |
| <b>D</b> | Control panel            |
| <b>E</b> | Brackets                 |
| <b>F</b> | Evaporator tray          |
| <b>G</b> | Plug-in insulating panel |

### 3.3.3 BEST WT components for installation with the plug-in fitted



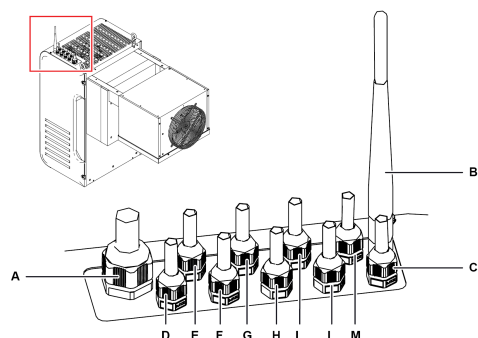
| Part     | Description              |
|----------|--------------------------|
| <b>A</b> | Evaporating part         |
| <b>B</b> | Eyebolts                 |
| <b>C</b> | Condensing unit          |
| <b>D</b> | Control panel            |
| <b>E</b> | Brackets                 |
| <b>F</b> | Evaporator tray          |
| <b>G</b> | Plug-in insulating panel |

### 3.3.4 Internal Components



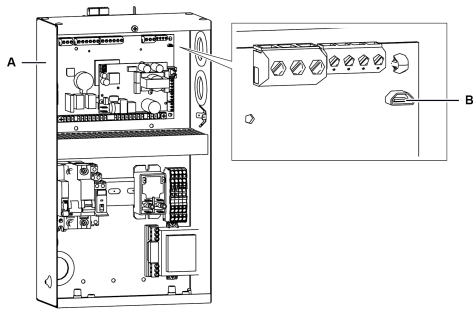
| Part     | Description                              |
|----------|------------------------------------------|
| <b>A</b> | Ventilation unit of the evaporating part |
| <b>B</b> | Thermostatic valve                       |
| <b>C</b> | Condenser                                |
| <b>D</b> | Condensate drain tray                    |
| <b>E</b> | Compressor                               |
| <b>F</b> | Evaporator                               |
| <b>G</b> | Condensing unit ventilation unit         |
| <b>H</b> | Electrical box                           |

### 3.3.5 Connections



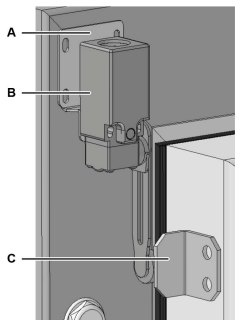
| Part     | Description                            |
|----------|----------------------------------------|
| <b>A</b> | Power supply                           |
| <b>B</b> | IoT Wi-Fi gateway antenna              |
| <b>C</b> | BMS (Building Management System)       |
| <b>D</b> | Cold room light                        |
| <b>E</b> | Alarm                                  |
| <b>F</b> | Door heater (only for low temperature) |
| <b>G</b> | Free position                          |
| <b>H</b> | IoT 2G gateway antenna                 |
| <b>I</b> | Master & slave                         |
| <b>L</b> | Remote control panel                   |
| <b>M</b> | Door micro switch                      |

### 3.3.6 USB port connection (if present)



| Part     | Description    |
|----------|----------------|
| <b>A</b> | Electrical box |
| <b>B</b> | USB micro port |

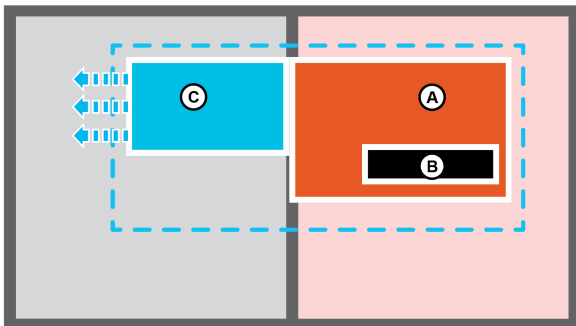
### 3.3.7 Door micro switch components



| Part     | Description       |
|----------|-------------------|
| <b>A</b> | Fixing plate      |
| <b>B</b> | Door micro switch |
| <b>C</b> | Retainer          |

## 3.4 Packaged unit operation

### 3.4.1 General operation



The packaged unit is a refrigeration unit consisting of a condensing unit part **[A]** and a controller **[B]** outside the cold room and an evaporating part **[C]** placed inside. The controller manages the refrigeration and defrosting cycles.

The refrigeration cycle is the compression type and the refrigerant gas is condensed and evaporated cyclically.

Defrosting is of the hot gas type and takes place automatically with a cyclic frequency that can be modified by the user or fully automatically via the Smart Defrost function already active in the standard configuration.

### 3.4.2 MY I.D. app operation (only units with Bluetooth)

Within the App you can access the following sections:

- **News:** to know the news and events of the Rivacold world.
- **Select:** to know all the Rivacold products.
- **Documents:** to download the sales and technical documentation relating to Rivacold products.
- **My Vision:** to have access to the cloud through which it is possible to monitor and control the operation of every packaged unit. The IOT service must be purchased to have access to this area
- **Smart Control:** to control and command the packaged unit using the mobile device connected via Bluetooth, instead of the interface on the machine.
- **Contacts:** to know and find the closest Rivacold sales contact person.

**Note:** For further information, please refer to the controller manual.

## 4. Transport and handling

This section includes the following topics:

- 4.1 Handling warnings ..... 13
- 4.2 Transport and handling ..... 13

### 4.1 Handling warnings

#### 4.1.1 Required skills



#### 4.1.2 Safety



#### **DANGER!**

**Explosion/Burns. Presence of flammable gas. During transport and handling, adopt all the precautions required by the legislation in force.**



#### **WARNING**

**Crushing. Always use lifting equipment and accessories of adequate capacity for the load to be lifted. Use the personal protective equipment. Follow the warnings given in this instruction manual concerning lifting.**

#### **NOTICE**

There is oil in the machine. Always handle in an upright position.

#### 4.1.3 Choosing lifting equipment and accessories

The following generic indications apply to load lifting operations and also concern the use of lifting accessories not supplied with the packaged unit.

Choose lifting equipment and accessories according to the dimensions, weight and shape of the load to be lifted.

#### 4.1.4 Preliminary checks

- Check that the lifting accessories are intact.
- Check that there are no people or objects in the manoeuvring area.
- Check the stability and correct balancing of the load by slowly lifting it slightly.

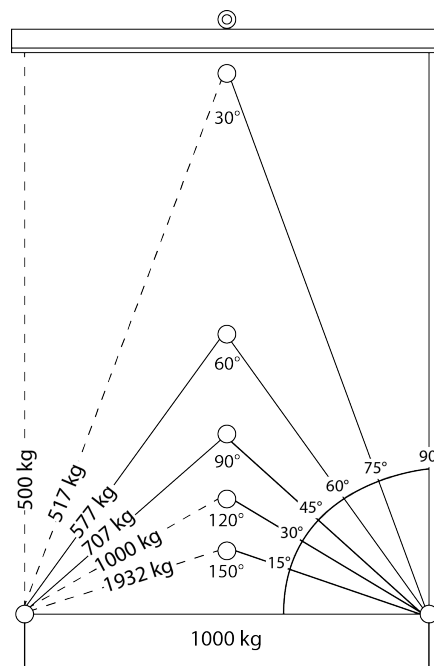
#### 4.1.5 Generic warnings

- Due to the presence of oil in the compressor, move the packaged unit while still maintaining the upright position. NEVER turn the packaged unit upside down.
- Choose the harnessing points so that the load is balanced correctly, considering its centre of gravity.
- Monitor the lifting movement from a safe distance. NEVER stand under the load.
- Only guide the load with ropes and hooks.
- If you need to accompany the load with your hands, pull the load. DO NOT push it.
- Lift the load continuously, without jerking or sudden movements.
- After placing the load on the ground, slacken the tension on the tie rods before removing the lifting accessories.

**Note:** the centre of gravity is indicated on the packaged unit packaging.

#### 4.1.6 Lifting angle

The angle between the tie rods changes the applied load according to the following diagram:



**Note:** we recommend using angles less than 60°.

### 4.2 Transport and handling

#### 4.2.1 Transport conditions

The packaged unit is secured and packed in such a way as to prevent movement, impact and damage during transport.

#### 4.2.2 Packaging content

The packaged unit is placed in a single package, complete with all electrical connections. The contents of the packaging are as follows:

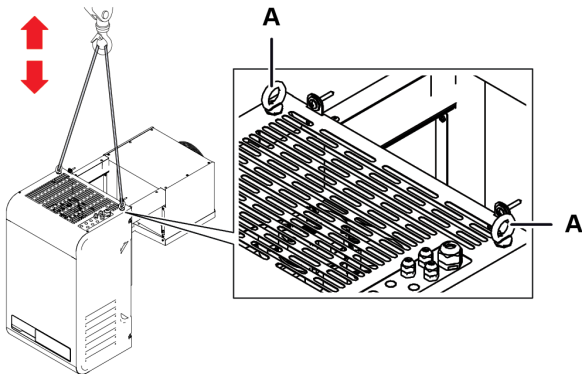
- packaged unit
- door micro switch with retainer
- fastening kit
- cold room light

#### 4.2.3 Storage

The wrapped packaged unit must be stored indoors or covered to avoid exposure to atmospheric agents.

#### 4.2.4 Lifting the packaged unit

The centre of gravity is indicated on the packaged unit packaging. Use the lifting eyebolts **[A]** on the frame.



## 5. Installation

### 5.1 Installation warnings

#### 5.1.1 Foreword

Always refer to the instructions given in this instruction manual. In case of need, please contact the Rivacold technical support.

For operations from control panel, a complete list of electronic control commands and functions, please refer to the controller manual.

#### 5.1.2 Required skills



COMPANY

#### 5.1.3 Safety



### **DANGER!**

**Explosion/Burns.** Presence of flammable gas. The place of installation must have good air circulation and must be far from heat sources, such as naked flames or hot surfaces and from electrical components or flammable materials. During installation, adopt all the precautions required by legislation in force.

**Crushing.** Always use lifting equipment and accessories of adequate capacity for the load to be lifted and follow the lifting warnings given in this instruction manual.

**Falling from above.** Always use adequate means and accessories. Provide safe access to the installation area. Follow the warnings given in this instruction manual.

**Electrocution.** Always use adequate means and accessories. Follow the warnings given in this instruction manual.

### 5.2 Setting the packaged unit in place

#### 5.2.1 Characteristics of the placement area

#### **NOTICE**

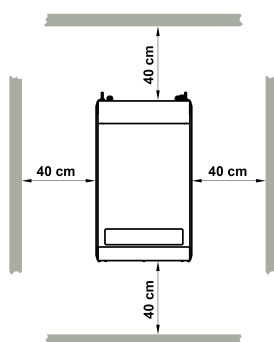
The packaged unit must only be installed inside rooms that fully shelter it.

The placement area must have the following characteristics:

- The place of installation must have good air circulation and must be far from heat sources (e.g. naked flames or hot surfaces) and from electrical components or flammable materials.
- the wall must be vertical with an adequate surface to support the weight of the packaged unit, even, well levelled and free from vibrations.
- The walls of the coldrooms must not be thicker than 200 mm. A 100 mm plug-in insulating panel is supplied as standard for NT units, whereas the standard plug-in insulating panel is 150 mm for LT units.
- The place of installation must have a temperature indicated in "Technical features" on page 39.

### 5.2.2 Minimum distances of the placement area

The packaged unit must be positioned in a placement area with minimum distances to allow proper air circulation and facilitate maintenance.



### 5.2.3 Removing the packaging

#### NOTICE

Environmental contamination. Follow the regulations in force regarding the disposal of polluting materials.

Remove all packaging and fastening elements used during transport.

### 5.2.4 Inspections and checks on the packaged unit

Visually inspect the packaged unit to look for any damage caused during transport that could compromise normal operation. Transport damage must be attributed to the carrier and immediately reported to RIVACOLD srl.

### 5.2.5 Storage

If the packaged unit must be stored for long periods, for example waiting to be relocated, follow the instructions below.

- Isolate the packaged unit from energy sources.
- Clean the packaged unit and all its components.
- Position the packaged unit so that there is sufficient space to pick it up, lift it and move it safely.
- Place the packaged unit indoors and covered with sheets so as to avoid exposure to atmospheric agents.
- Place the packaged unit on a stable, solid supporting surface with characteristics so as to withstand the weight of the packaged unit and the equipment involved
- Place the packaged unit in an environment with specific temperature and humidity conditions

See "Technical features" on page 39 for more information.

## 5.3 Installation requirements

### 5.3.1 Stability requirements

Check that the wall where the packaged unit is to be installed is suitable for supporting it.

### 5.3.2 Requirements for the connection to the electrical mains

The packaged unit is supplied with a power lead and plug.

Comply with the following requirements:

- The voltage and frequency supplied must correspond to those indicated on the identification plate
- Insert a differential circuit breaker (RCD) between the power line and the packaged unit, adequately sized for the application and the laws in force in the country of installation. The switch must be near the packaged unit.

See "Technical features" on page 39.

### 5.3.3 Requirements for connection to the hydraulic circuit (water-cooled version only)

The packaged unit is designed for operation in a closed hydraulic system.

Max. pressure: 6 bar

The hydraulic system must guarantee the lowest possible pressure drop (see "Technical features" on page 39):

- Correct this value appropriately according to the type of fluid.
- Correctly dimension pressure drops to ensure design flow rates.

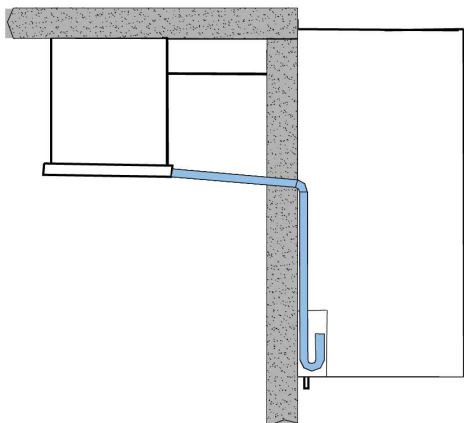
For connection use:

- clean and specially insulated pipes
- anti-vibration joints on pipes

For open systems, use packaged unit with pressostatic valve.

## 5.4 Install the BEST WS (wall saddle)

### 5.4.1 Result of the installation

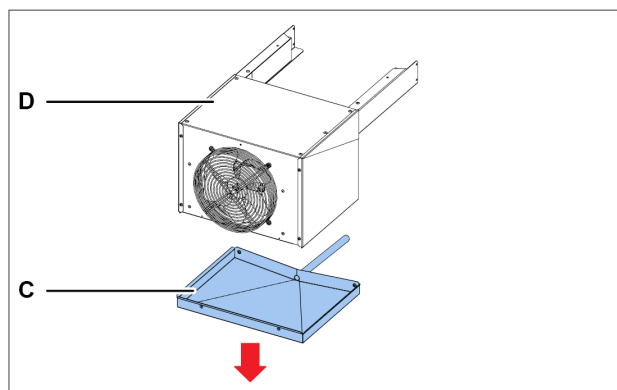
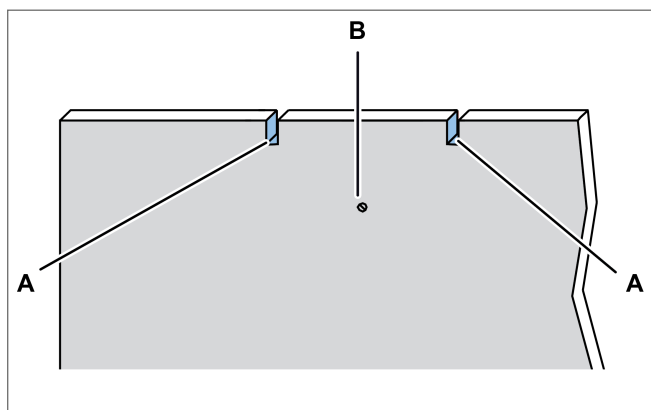


### 5.4.2 Dimensions of the grooves to be made in the wall

Depending on the dimensions of the packaged unit, make two grooves on the upper end of the cold room wall. Use the packing template to proceed more quickly (measurements in mm).

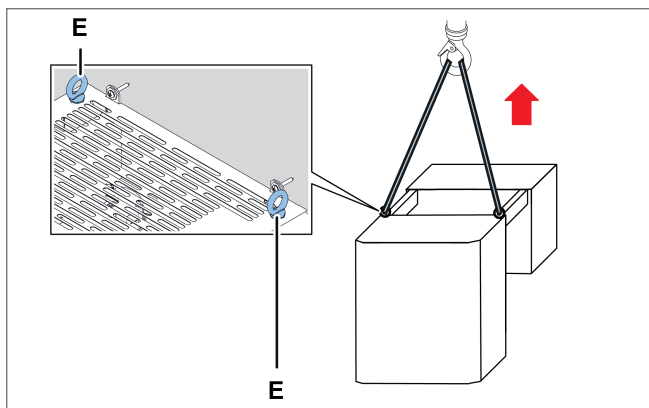
| BEWS25 Codes | BEWS30 Codes | BEWS35 Codes |
|--------------|--------------|--------------|
|              |              |              |

### 5.4.3 Procedure

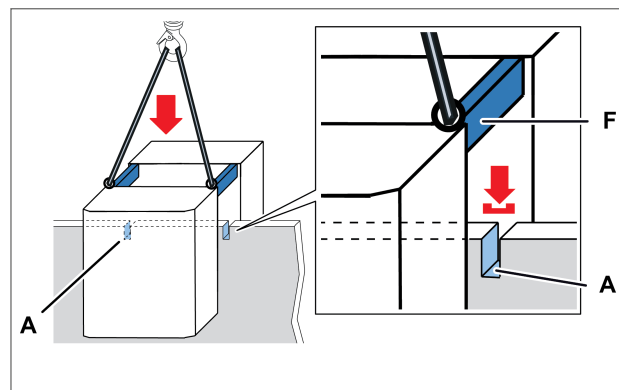


1. Make the grooves **[A]** and a hole **[B]** in the wall to drain water, using the packaging template.

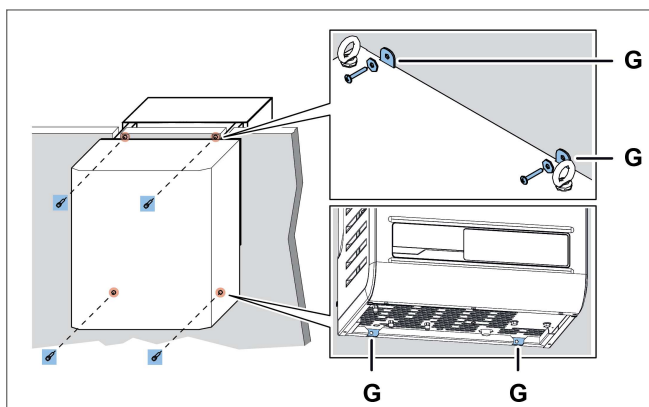
2. Undo the screws of the tray **[C]** and remove it from the evaporating part **[D]**.



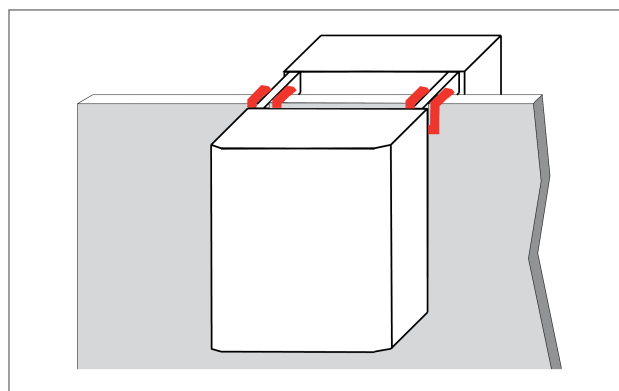
3. Lift the packaged unit using the eyebolts **[E]**.



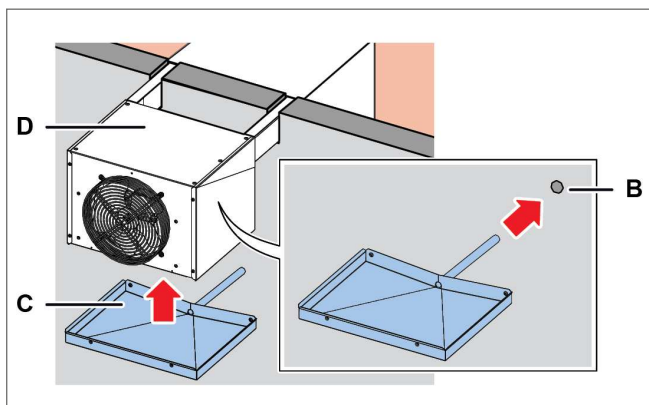
4. Set the packaged unit in place, inserting the brackets **[F]** into the grooves **[A]** of the wall.



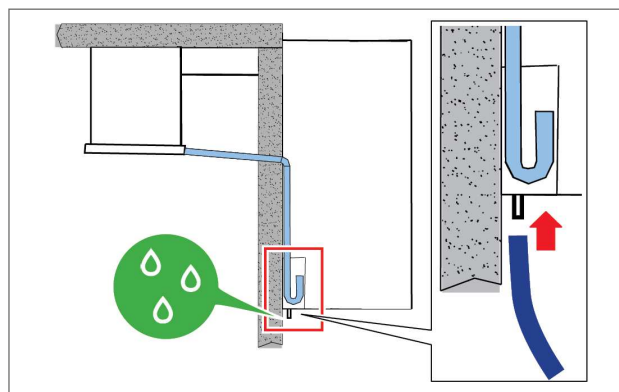
5. Secure the packaged unit to the wall by inserting the screws in the holes **[G]**.



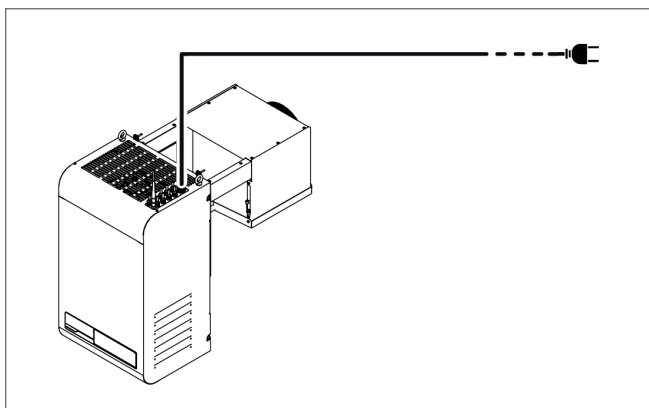
6. Seal the grooves in contact with the packaged unit and the brackets with silicone.



7. Secure the tray **[C]** to the evaporating part **[D]** by inserting the tube in the hole **[B]** of the wall.



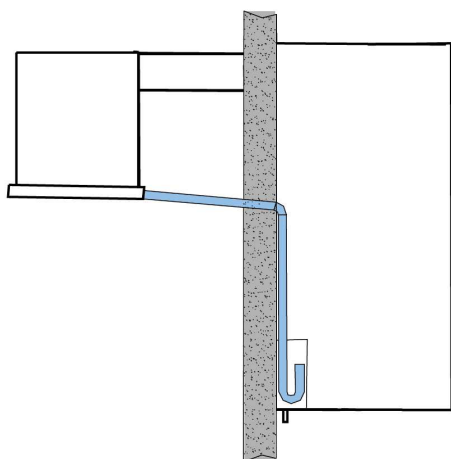
8. Connect the 5/8" (15.9 mm) diameter condensate drain overflow pipe.
9. Wire the cold room light by connecting it to the packaged unit with the already prepared cable.
10. Install the door micro switch (see "Secure the door micro switch" on page 22).



11. Connect electricity and turn on (see "Starting and stopping" on page 25).

## 5.5 Install the BEST W (with plug-in insulating panel)

### 5.5.1 Result of the installation

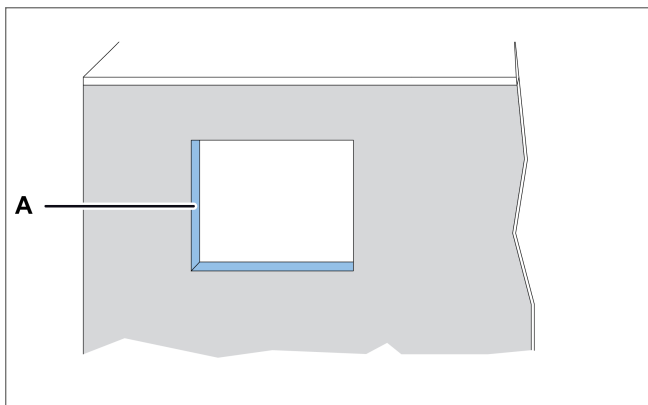


### 5.5.2 Dimensions of the window to be made in the wall

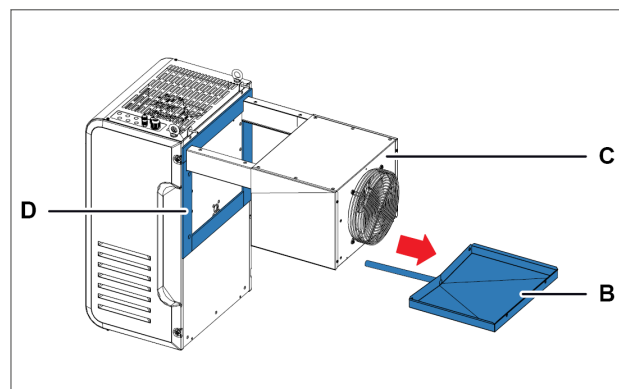
Depending on the size of the packaged unit, cut a window in the cold room wall with the following dimensions (in mm). Use the packaging template to proceed more quickly.

| BEW25 Codes | BEW30 Codes | BEW35 Codes |
|-------------|-------------|-------------|
|             |             |             |

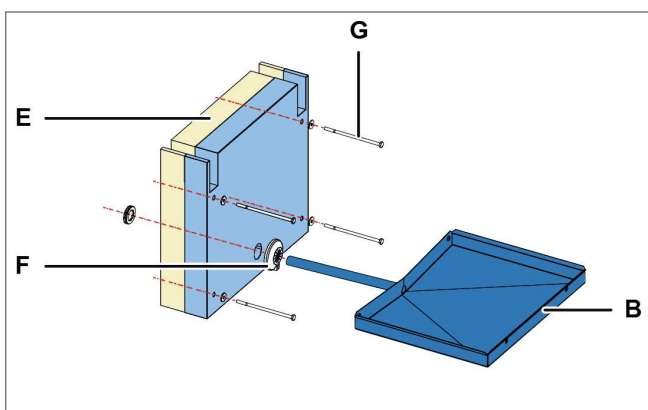
### 5.5.3 Procedure



1. On the wall of the cold room, make a window [A] using the template in the packaging.

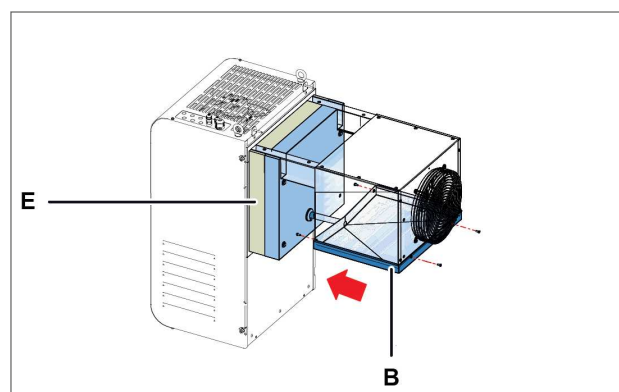


2. Unscrew the tray screws [B] and remove it from the evaporating part [C], paying attention to the drain heater.
3. Apply the gaskets [D] supplied with the plug-in insulating panel kit.

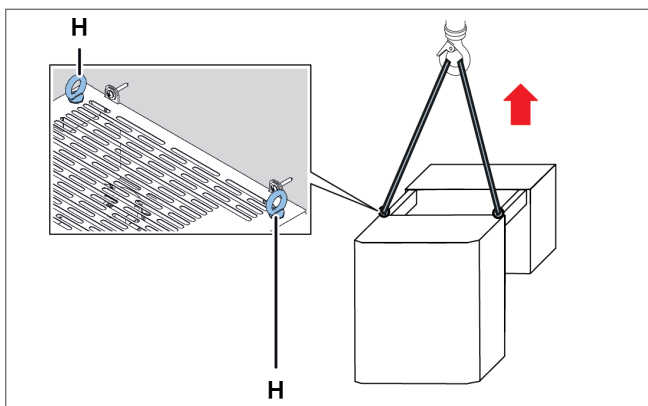


4. Place the plug-in insulating panel [E] between the brackets of the packaged unit.
5. Insert the tube of the tray [B] with the gasket [F] together with the screws [G] into the plug-in insulating panel.

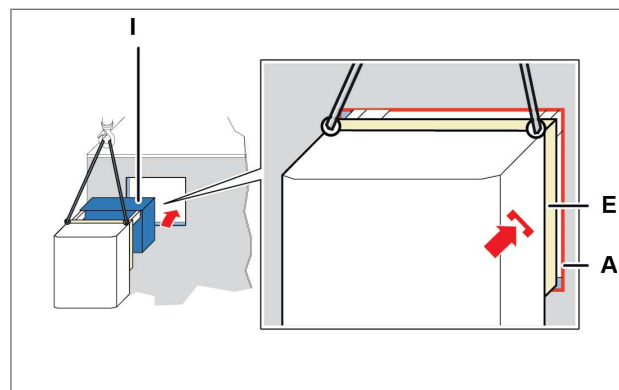
**NOTICE** : pay attention to the correct positioning of the drain heater.



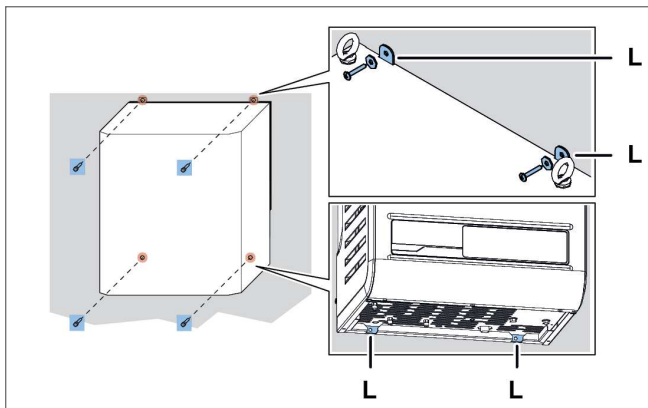
6. Secure the plug-in insulating panel [E] and the tray [B] to the packaged unit.



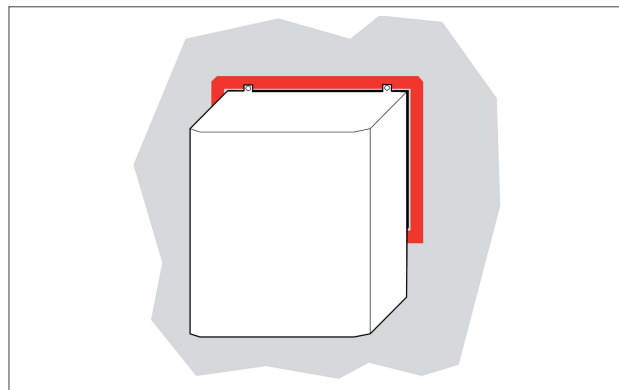
7. Lift the packaged unit using the eyebolts [H].



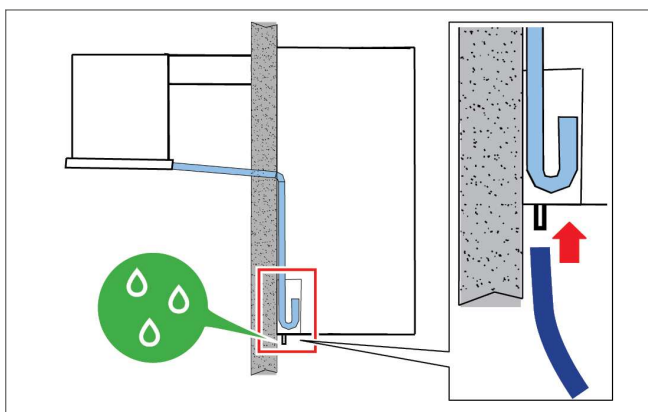
8. Insert the evaporating part [I] and recess the plug-in insulating panel [E] in the window [A] of the wall.



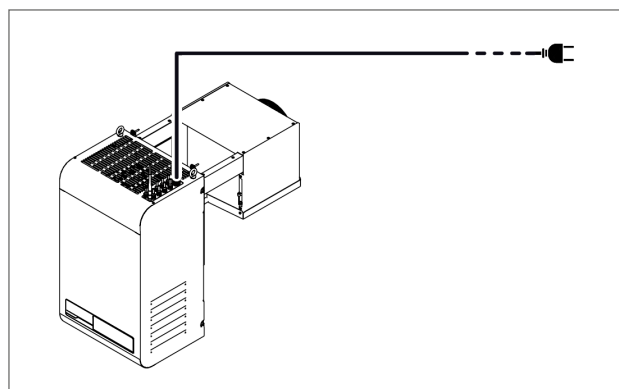
9. Secure the packaged unit to the wall by inserting the screws in the holes [L].



10. Seal the parts of the packaged unit in contact with the edges of the window with silicone.



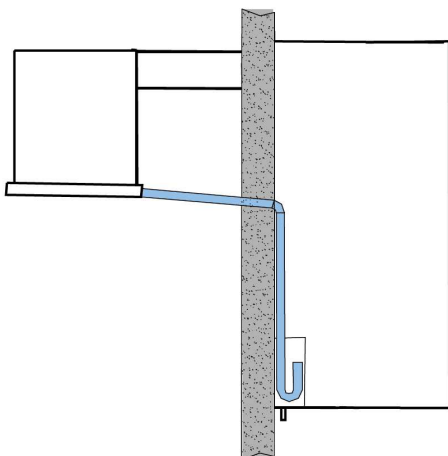
11. Connect the overflow tube to drain the condensate.  
12. Wire the cold room light by connecting it to the packaged unit with the already prepared cable.  
13. Install the door micro switch (see "Secure the door micro switch" on page 22).



14. Connect electricity and turn on (see "Starting and stopping" on page 25).

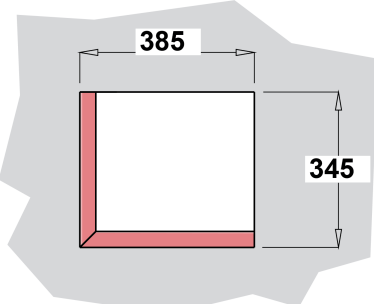
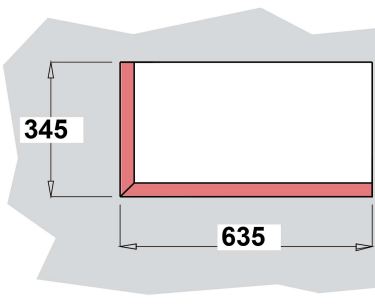
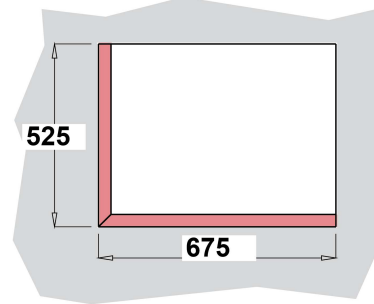
## 5.6 Install the BEST WT (with the pre-fitted plug-in insulating panel)

### 5.6.1 Result

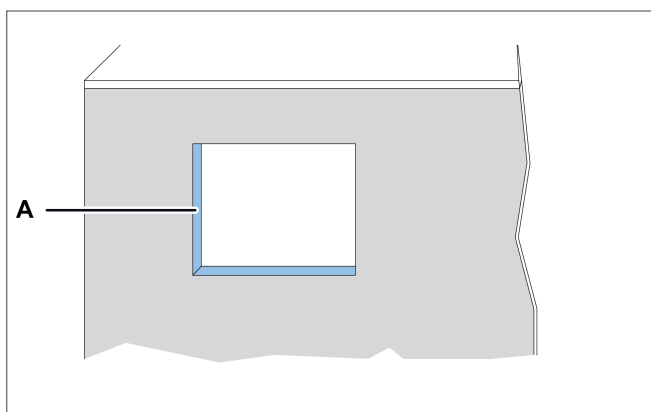


### 5.6.2 Dimensions of the window to be made in the wall

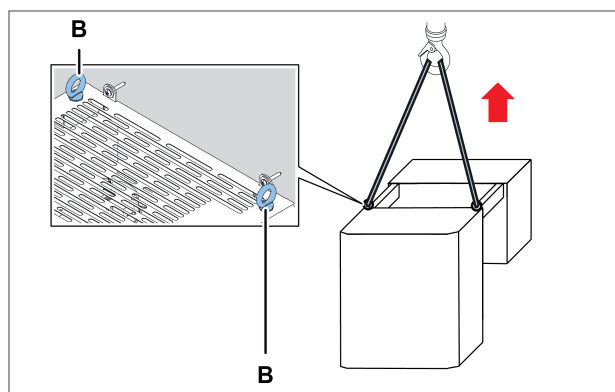
For this type of installation, depending on the dimensions of the packaged unit, a window with the following dimensions in millimetres (mm) must be made in the cold room wall chosen for installation:

| BEWT25 Codes                                                                      | BEWT30 Codes                                                                      | BEWT35 Codes                                                                        |
|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|  |  |  |

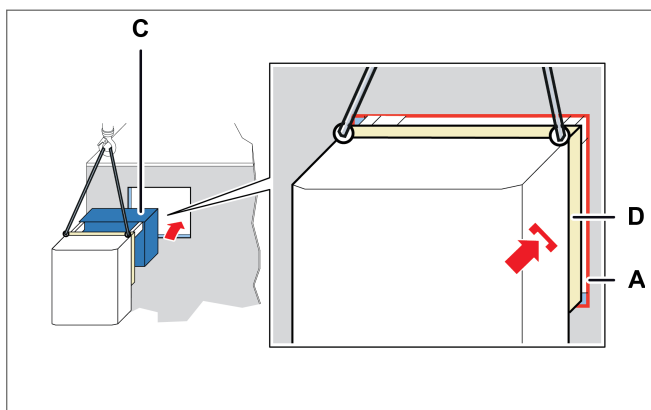
### 5.6.3 Procedure



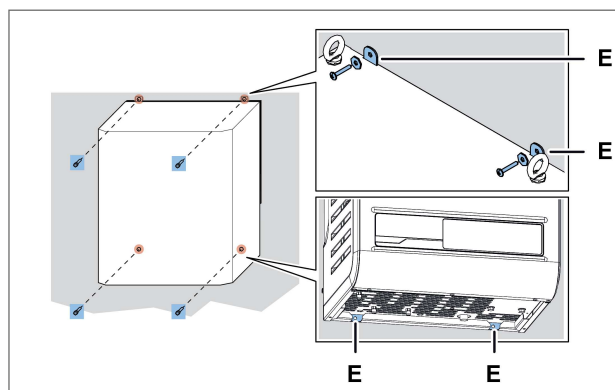
1. On the wall of the cold room, make a window **[A]** using the template in the packaging.



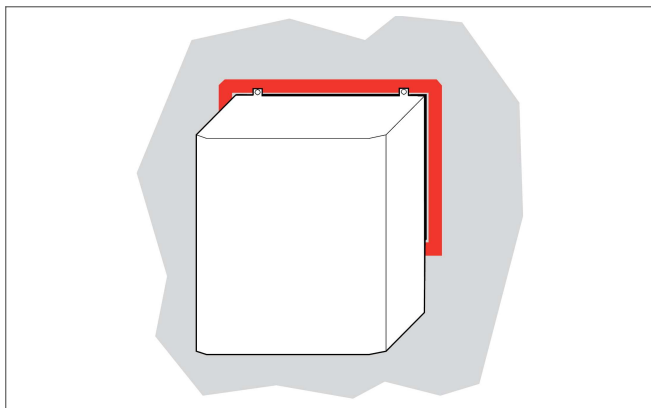
2. Lift the packaged unit using the eyebolts **[B]**.



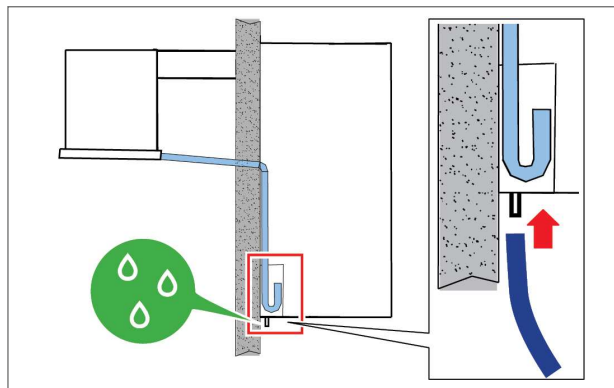
3. Insert the evaporating part **[C]** and recess the plug-in insulating panel **[D]** in the window **[A]** of the wall.



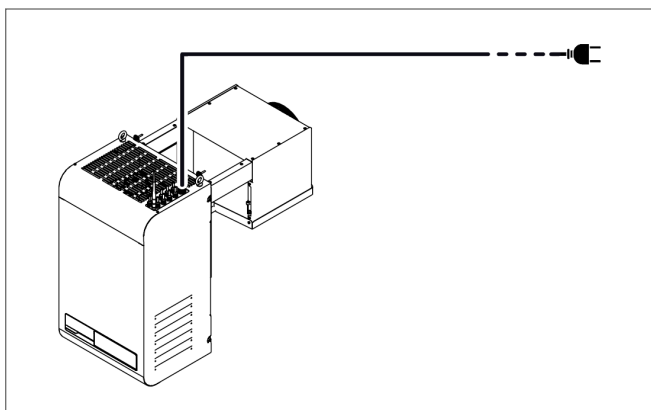
4. Secure the packaged unit with the screws **[E]**.



5. Seal the parts of the packaged unit in contact with the window with silicone.



6. Connect the overflow tube to drain the condensate.
7. Wire the cold room light by connecting it to the packaged unit with the already prepared cable.
8. Install the door micro switch (see "Secure the door micro switch" below).



9. Connect electricity and turn on (see "Starting and stopping" on page 25).

## 5.7 Secure the door micro switch

### 5.7.1 Safety



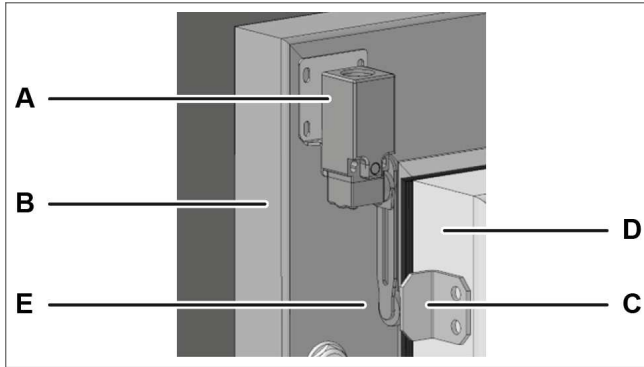
#### CAUTION

The installation of electrical components inside the cold room is the sole responsibility of the end user. Only use suitable materials for the types of risks, in compliance with the laws in force.

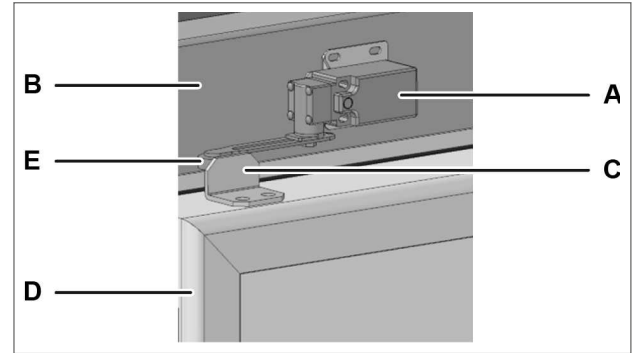
#### NOTICE

To avoid signal interference, the door micro switch cable must be routed away from power cables.

### 5.7.2 Procedure with hinged door



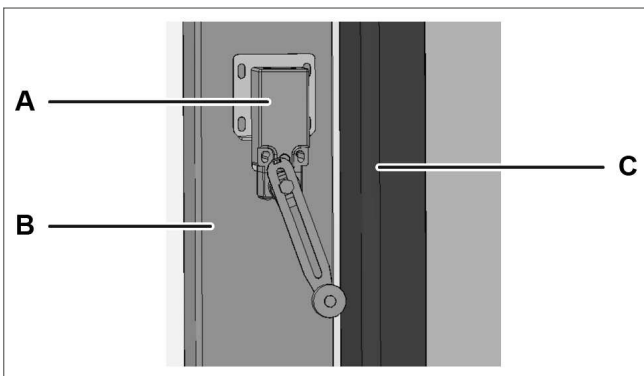
Vertical installation



Horizontal installation

1. Secure the door micro switch [A] on the cold room [B] in a horizontal or vertical position, as required.
2. Fasten the latch [C] on the door [D] at the wheel [E].
3. To check that the door micro switch trips, close the cold room door: the door micro switch should trip when the door is fully closed.

### 5.7.3 Procedure with sliding door



Vertical installation

1. Fasten the door micro switch [A] on the cold room [B].
2. To check that door micro switch trips, close the door [C] of the cold room: the door micro switch should trip when the door is fully closed.

## 5.8 Connect the packaged unit to the electrical mains

### 5.8.1 Safety



**DANGER!**

**Electrocution. Always use adequate equipment and accessories and follow the connection warnings given in this instruction manual.**

### 5.8.2 Connect the packaged unit

1. See "Requirements for the connection to the electrical mains" on page 15.
2. Once connected, the display lights up.
3. Switch on the packaged unit (see "Starting and stopping" on page 25).

**NOTICE:** Only start the machine when the ambient temperature is below 32°C. For water-cooled versions, the temperature must be below 37°C.

## 5.9 Work area and operational tasks

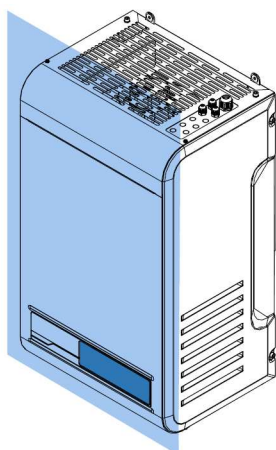
---

### 5.9.1 Required skills



### 5.9.2 Work area

The work area for the operator is that in front of the control panel.



### 5.9.3 Operating tasks

The operator sets the packaged unit and checks that it functions correctly.

The operator periodically cleans the packaged unit.

## 6. Starting and stopping

---

### 6.1 Procedures

---

#### 6.1.1 Turn the packaged unit on

To start the packaged unit, press and hold the button  for 3 seconds: the display shows the value of the control probe (cold room temperature).

**NOTICE** : *The ambient temperature must be below 32°C to be able to carry out the first start-up.*

#### 6.1.2 Switch off the packaged unit

To stop the packaged unit, press and hold the  button for 3 seconds: OFF appears on the display.

#### 6.1.3 What to do next

For a complete list of electronic control commands and functions, please refer to the controller manual.

## 7. Maintenance

This section includes the following topics:

|                                                               |    |
|---------------------------------------------------------------|----|
| 7.1 Maintenance warnings .....                                | 26 |
| 7.2 Maintenance and cleaning performed by the operators ..... | 27 |
| 7.3 Periodic maintenance .....                                | 27 |
| 7.4 Corrective maintenance .....                              | 28 |
| 7.5 Remove the front panel .....                              | 28 |
| 7.6 Checking or replacing condensing unit components .....    | 29 |
| 7.7 Checking or replacing evaporating part components .....   | 32 |
| 7.8 Check or replace components of the electrical box .....   | 33 |

### 7.1 Maintenance warnings

#### 7.1.1 Required skills



#### 7.1.2 Safety



#### **DANGER!**

**Explosion/Burns. Presence of flammable gas. During maintenance, adopt all the precautions required by legislation in force and the warnings for adjustments and maintenance indicated in this instruction manual.**

#### **CAUTION!**

Low temperatures. During maintenance and cleaning in the cold room, take breaks to avoid long exposure to low temperatures.

- Only perform the maintenance described in this instruction manual and observe the indicated maintenance frequency.
- Before carrying out any type of operation, it is necessary to check for propane leaks (R290) with a special gas detector.
- The machines have a factory-sealed refrigerant circuit. At the end of any type of operation that involves the removal/replacement of the gas, it is necessary to seal the circuit hermetically, restoring the factory conditions.
- Failure to reposition the guards at the end of maintenance can cause serious damage. Always refit the guards at the end of maintenance.
- At the end of maintenance, check that there are no tools or components left inside the packaged unit.
- Do not release the products used during maintenance into the environment. Follow the regulations in force regarding the disposal of dangerous and/or polluting fluids.

#### 7.1.3 Isolation from energy sources

Before performing maintenance, disconnect the power plug.

#### 7.1.4 Maintenance on equipment components

Perform maintenance by following the instructions, frequencies and all indications in the manuals and in the attached documentation. If necessary, contact RIVACOLD srl assistance.

## 7.2 Maintenance and cleaning performed by the operators

### 7.2.1 Required skills



### 7.2.2 Safety



**DANGER!** Explosion/Burns. Presence of flammable gas. During maintenance, adopt all the precautions required by legislation in force and the warnings for adjustments and maintenance indicated in this instruction manual.

**CAUTION!** Low temperatures. During maintenance and cleaning in the cold room, take breaks to avoid long exposure to low temperatures.

Only perform the maintenance and cleaning described in this instruction manual and observe the indicated maintenance frequency.

### 7.2.3 Daily operations

| Task     | Component                            | Procedure                                          | Time indicative [min] |
|----------|--------------------------------------|----------------------------------------------------|-----------------------|
| Check    | Packaged unit                        | Check that the packaged unit is in good condition. | 5                     |
| Cleaning | Evaporating part and condensing unit | Clean as needed.                                   | 30                    |

### 7.2.4 Weekly operations

| Task       | Component  | Procedure                                                                                                                                                                                 | Time indicative [min] |
|------------|------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|
| Defrosting | Evaporator | If there is ice on the evaporating part:<br>1. Perform manual defrosting (see controller manual).<br>2. Repeat the procedure until completely defrosted.<br>3. Check again after 12 hours | -                     |

## 7.3 Periodic maintenance

### 7.3.1 Required skills



### 7.3.2 Safety

|  |                                                      |
|--|------------------------------------------------------|
|  | Always wear helmets, footwear and protective gloves. |
|  | Always wear the mask and protective goggles.         |

### 7.3.3 Monthly operations

| Task     | Component                           | Procedure                                                                                                                                                                                                                                                             | Time indicative [min] |
|----------|-------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|
| Check    | Metalwork                           | <ul style="list-style-type: none"> <li>Check that all metal surfaces are in good condition.</li> <li>Check that the screws are tightened correctly.</li> </ul>                                                                                                        | 10                    |
|          | Electrical cables                   | Check that the electrical cables are intact. If any cuts or cracks are found, immediately replace the power cable with a new one.                                                                                                                                     | 15                    |
|          | Refrigeration circuit               | Check that the refrigeration circuit is in good condition and that there are NO refrigerant gas leaks. Usually, the presence of lubricating oil indicates leaking refrigerant from the circuit. If in doubt, before carrying out any operation, contact RIVACOLD srl. | 30                    |
| Cleaning | Evaporator                          | Clean in the following cases:                                                                                                                                                                                                                                         | 15                    |
|          | Condenser (air-cooled version only) | <ul style="list-style-type: none"> <li>as needed</li> <li>if dust or grease is noted</li> </ul>                                                                                                                                                                       |                       |

### 7.3.4 Operations every four months

| Task                 | Component                                     | Procedure                                                                                                                                       |
|----------------------|-----------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|
| Checks, replacements | Electrical box                                | Check the contactors and replace them if they show signs of deterioration.                                                                      |
|                      | Compressor                                    | Check the noise (see "Check the compressor noise" on page 30)                                                                                   |
| Checks               | Hydraulic circuit (water-cooled version only) | <ul style="list-style-type: none"> <li>Check that there are no leaks in the circuit.</li> <li>Check the integrity of the insulation.</li> </ul> |
| Cleaning             | Electrical box                                | Clean the fixed and mobile contacts of all the contactors.                                                                                      |

## 7.4 Corrective maintenance

### 7.4.1 Required skills



### 7.4.2 Safety

If in doubt, before carrying out any operation, contact RIVACOLD srl.

### 7.4.3 What to do

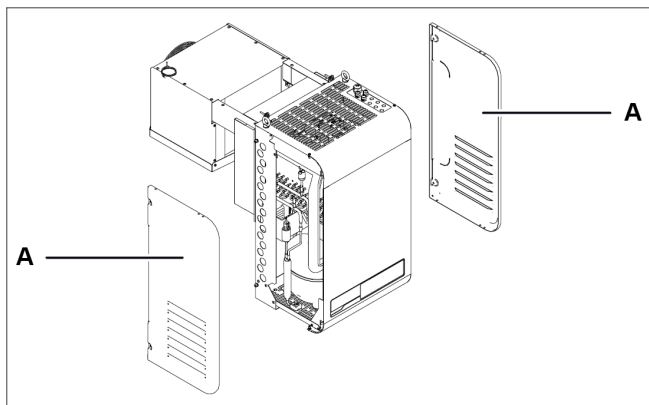
In case of damage or a malfunction, consult the "Installation and operation troubleshooting" on page 35 or contact Rivacold srl.

## 7.5 Remove the front panel

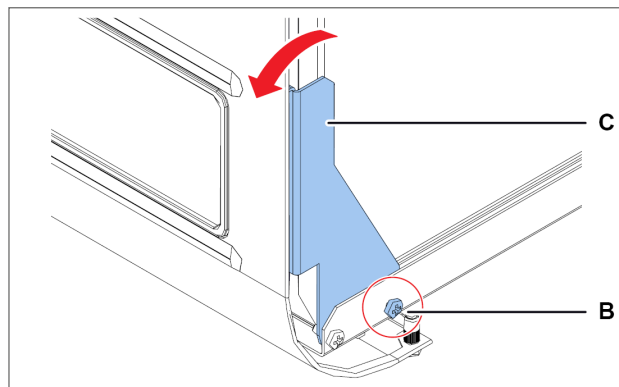
### 7.5.1 Required skills



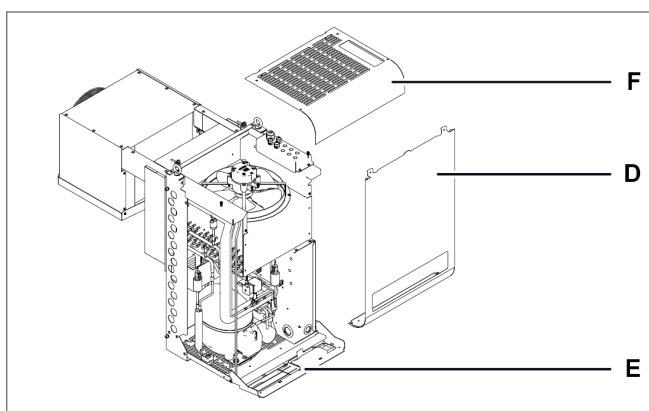
## 7.5.2 Procedure



1. Remove the side panels [A].



2. On both sides, undo the screws [B] and slightly rotate the bracket [C].



3. Remove the front panel [D].
4. If necessary, lower the controller panel [E].
5. If necessary, remove the top panel [F].

## 7.6 Checking or replacing condensing unit components

### 7.6.1 Required skills



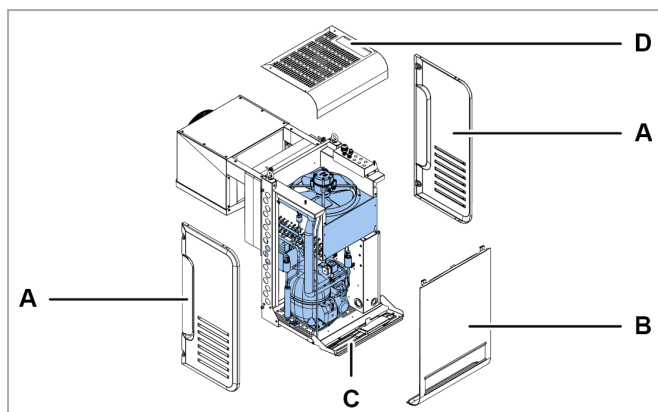
### 7.6.2 When to check or replace

Perform this procedure when problems are found on the condensing unit components (see "Installation and operation troubleshooting" on page 35).

### 7.6.3 Warning

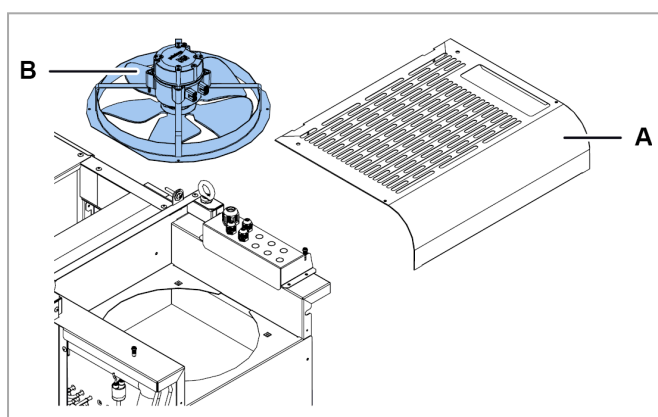
Check or replace the components following the instructions, frequency and all indications in this manual and in the attached documentation. If necessary, contact RIVACOLD srl assistance.

### 7.6.4 Checking or replacing internal components of the condensing unit



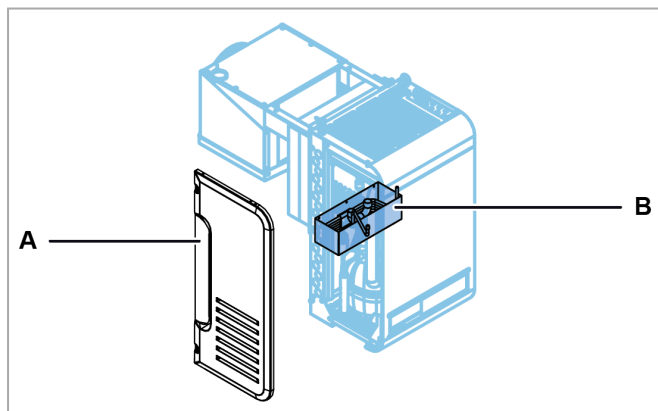
1. Remove the side panels **[A]**.
2. Remove the front panel **[B]** and lower the controller panel **[C]** and if necessary, remove the top panel **[D]** (see "Remove the front panel" on page 28).
3. Check or replace the internal components of the condensing unit.
4. Set all the panels back in place.

### 7.6.5 Checking or replacing the condensing fan unit



1. Remove the top panel **[A]**.
2. Check the fan unit of the evaporating part **[B]**.
3. If necessary, replace the damaged component with an original spare part and follow the enclosed instructions.
4. Set the panel back in place.

### 7.6.6 Check the condensate drain tray

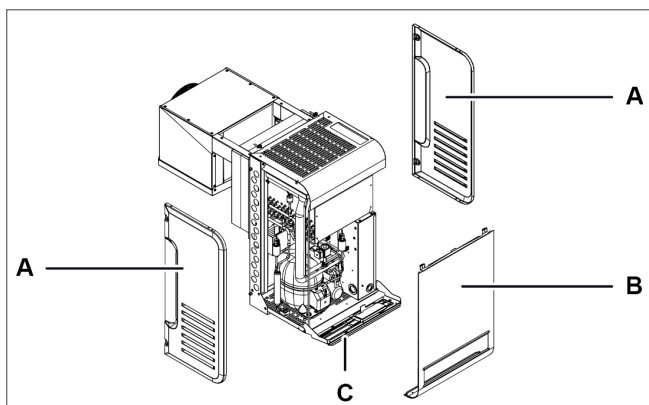


1. Remove the left side panel **[A]**
2. Check the condensate drain tray **[B]**.
3. Set the panel back in place.

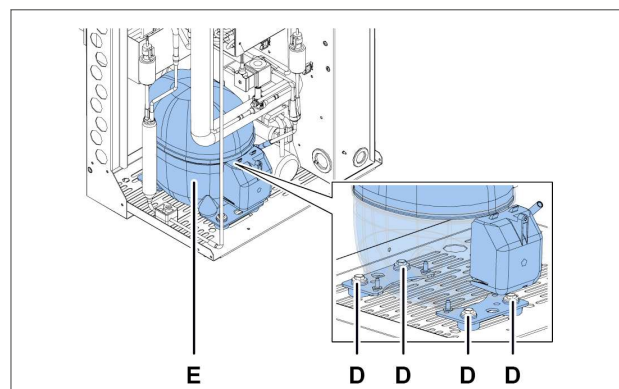
### 7.6.7 Check the compressor noise

1. Turn the packaged unit on.
2. Verify that the compressor does NOT generate vibrations or clicking sounds, that is, sounds generated by short, close, sharp and frequent blows.
3. If the compressor emits or generates vibrations or clicking sounds, it could be broken and must be replaced (see "Replace the compressor" on the facing page), or there is mechanical clearance between the parts that must be fixed.

### 7.6.8 Replace the compressor

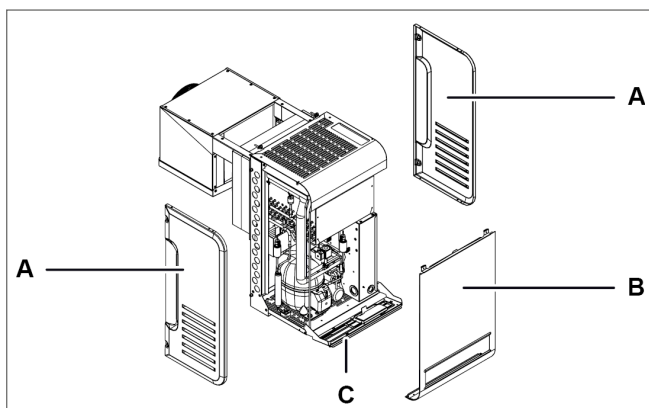


1. Remove the side panels **[A]**.
2. Remove the front panel **[B]** (see "Remove the front panel" on page 28).
3. Lower or if necessary, remove the controller panel **[C]**.

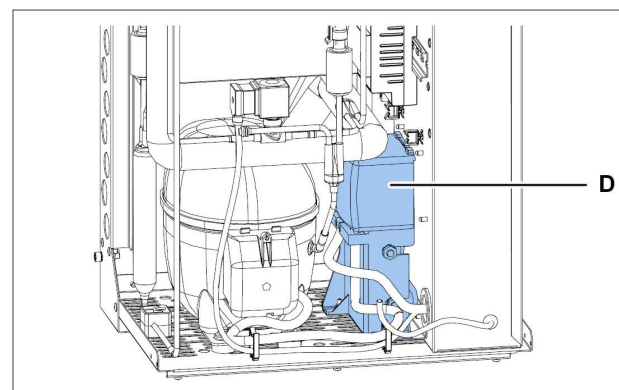


4. Undo the screws **[D]** and remove the compressor **[E]**, removing all the components that prevent its removal.
5. Insert the new compressor, securing it with the screws and put all the other components back in place.
6. Set all the panels back in place.

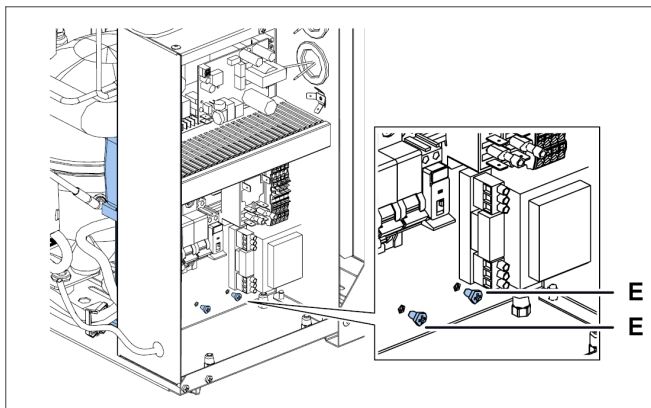
### 7.6.9 Replace compressor housing



1. Remove the side panels **[A]**.
2. Remove the front panel **[B]** (see "Remove the front panel" on page 28).
3. Lower or if necessary, remove the controller panel **[C]**.



4. Remove the compressor box **[D]**, removing all the components that prevent its removal.



5. For packaged unit size 1 x 250, remove the electrical box cover (see "Check or replace components of the electrical box" on the facing page) and remove the screws [E].

## 7.7 Checking or replacing evaporating part components

### 7.7.1 Required skills



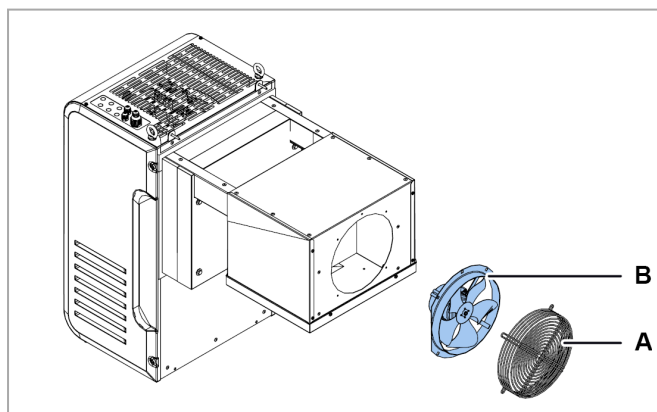
### 7.7.2 When to check or replace

Perform this procedure when problems are found on the evaporating part components (see "Installation and operation troubleshooting" on page 35).

### 7.7.3 Warning

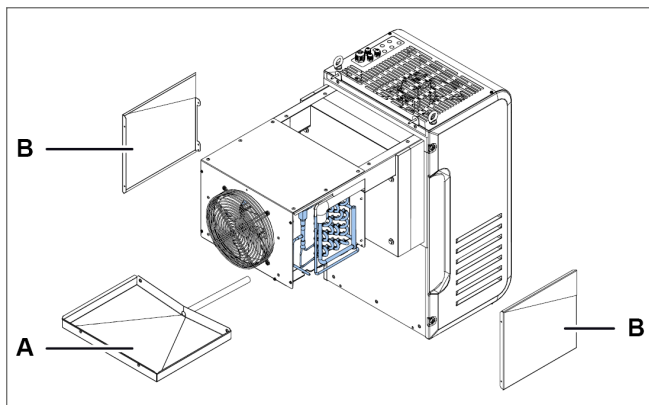
Check or replace the components following the instructions, frequency and all indications in this manual and in the attached documentation. If necessary, contact RIVACOLD srl assistance.

### 7.7.4 Checking or replacing the fan unit

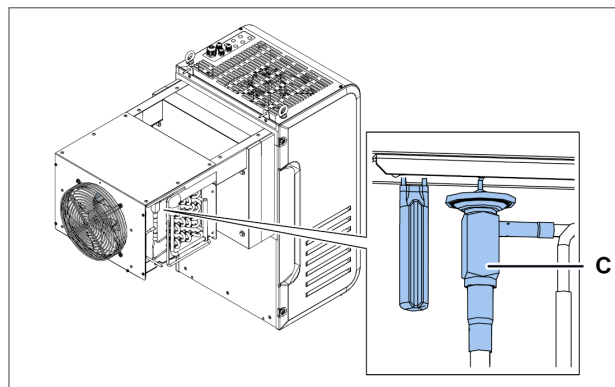


1. Remove the la grid [A].
2. Check or replace the fan unit of the evaporating part [B].
3. Replace the damaged component with an original spare part and follow the enclosed instructions.
4. Put the condenser-fan motor and grid back in place.

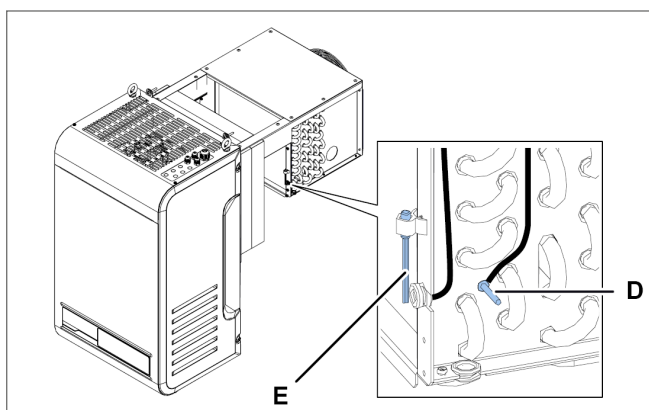
### 7.7.5 Checking or replacing components



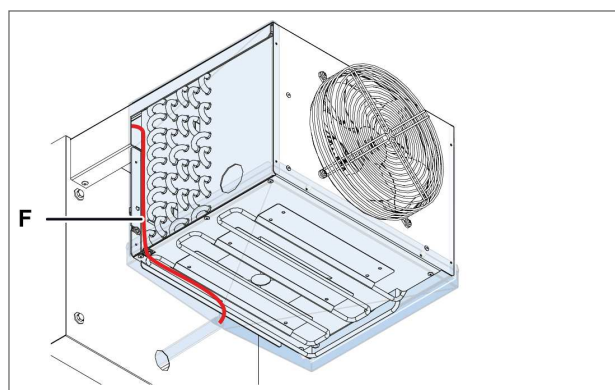
1. If the evaporator tray **[A]** must be replaced, remove it with the side panels **[B]**.



2. Check or replace the thermostatic valve **[C]**.



3. Check or replace the fin coil temperature probe **[D]** and the cold room temperature probe **[E]**.



4. Check or replace the drain heater **[F]**.

## 7.8 Check or replace components of the electrical box

### 7.8.1 Required skills



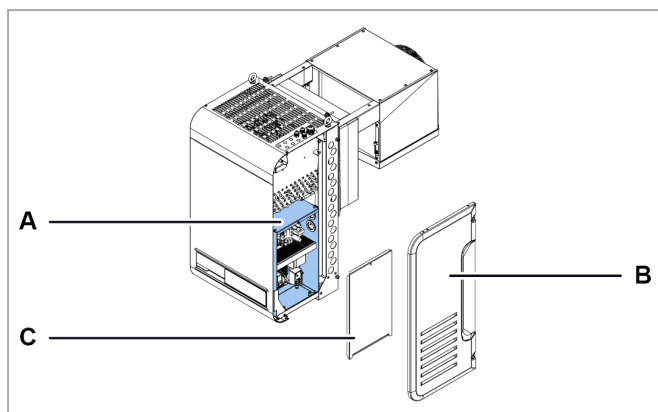
### 7.8.2 When to check or replace

Perform this procedure when problems are found on the electrical box components (see "Installation and operation troubleshooting" on page 35).

### 7.8.3 Warning

Check or replace the components following the instructions, frequency and all indications in this manual and in the attached documentation. If necessary, contact RIVACOLD srl assistance.

#### 7.8.4 Access the electrical box



1. Access the electrical box components **[A]** by removing the right side panel **[B]** and the electrical box panel **[C]**.
2. Check or replace the component.

## 8. Diagnostics

This section includes the following topics:

|                                                      |    |
|------------------------------------------------------|----|
| 8.1 Installation and operation troubleshooting ..... | 35 |
|------------------------------------------------------|----|

### 8.1 Installation and operation troubleshooting

#### 8.1.1 Skills



COMPANY

#### 8.1.2 Safety warnings

If maintenance is required, follow the instructions and all indications in this manual and in the attachments. If necessary, contact RIVACOLD srl assistance.



In case of maintenance, wear helmets, footwear and protective gloves.

#### 8.1.3 Causes and solutions

The packaged unit does not start-up

| Cause                                                                 | Solution                                                                                                                                                                                                                                                                                                                                         | Personnel |
|-----------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| Power failure.                                                        | <ul style="list-style-type: none"> <li>Check the connection to the mains.</li> <li>Check that there is voltage on the electrical mains and that it conforms with the rated data.</li> <li>Check the state of the circuit breakers on the machine.</li> </ul>                                                                                     |           |
| The compressor's thermal protection has tripped.                      | Check the integrity and activation state of the compressor circuit breaker on the machine and, if present, the thermal protection on the compressor                                                                                                                                                                                              |           |
| The start condenser is faulty.                                        | Replace the start condenser.                                                                                                                                                                                                                                                                                                                     |           |
| No controller consent to the compressor.                              | <ul style="list-style-type: none"> <li>Check the Setpoint (<b>Set</b>) and the differential (<b>diF</b>).</li> <li>Load the default setting of the unit.</li> </ul>                                                                                                                                                                              |           |
| There is controller consent but the compressor is off ( <b>OFF</b> ). | <ul style="list-style-type: none"> <li>Check the wiring of the compressor relay on the circuit board and its activation state. If the relay is NOT active, replace the circuit board.</li> <li>Check the wiring of the compressor power relay on the electrical box and its activation state. If the relay is NOT active, replace it.</li> </ul> |           |
| The electric motor has an interrupted or short-circuited winding.     | Replace the compressor.                                                                                                                                                                                                                                                                                                                          |           |

### The compressor is running without consent

| Cause                                                      | Solution                            | Personnel                                                                           |
|------------------------------------------------------------|-------------------------------------|-------------------------------------------------------------------------------------|
| The compressor relay is stuck to the circuit board.        | Replace the circuit board.          |  |
| The compressor power relay is stuck to the electrical box. | Replace the compressor power relay. |  |

### The packaged unit runs continuously or for long periods

| Cause                                                                                                 | Solution                                                                                                                                                                                                                                                                                                                                                                             | Personnel                                                                                                                                                                                                                                                                         |
|-------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| The packaged unit does NOT reach the <b>Setpoint</b> temperature and the evaporator fans DO NOT work. | <ul style="list-style-type: none"> <li>• If there is NO controller consent, check the evaporator fan parameters and, if necessary, load the default setting.</li> <li>• If there is controller consent, then, check the wiring of the fans and the relay on the circuit board and its activation state.</li> <li>• If the relay is NOT active, replace the circuit board.</li> </ul> | <br>                                                                                                        |
| The packaged unit does NOT reach the <b>Setpoint</b> temperature.                                     | <ul style="list-style-type: none"> <li>• If the evaporator is blocked with ice, then manually activate the defrosting several times (see the controller manual) until it is completely cleaned.</li> <li>• If the condenser is dirty, clean it.</li> <li>• Check that the unit is sized correctly for the required thermal load.</li> </ul>                                          | <br><br><br>COMPANY |

### Condensate water CANNOT evaporate (air-cooled version)

| Cause                                  | Solution                                                             | Personnel                                                                             |
|----------------------------------------|----------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| The condensing temperature is too low. | If possible, activate the minimum condensing temperature limitation. |  |

### The suction pipe and the compressor are frosted

| Cause                                                             | Solution                                                                                                                                                                                                                                                                                                                                                                                 | Personnel                                                                                                                                                                  |
|-------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| There is a liquid return and the evaporator fans are NOT working. | <ul style="list-style-type: none"> <li>If there is NO controller consent, check the evaporator fan parameters and, if necessary, load the default setting.</li> <li>If there is controller consent, then, check the wiring of the fans and the relay on the circuit board together with its activation state.</li> <li>If the relay is NOT active, replace the circuit board.</li> </ul> | <br> |
| There is a liquid return.                                         | Check the overheating value in the evaporator inside the cold room. If the value is less than 2K, then the thermostatic valve does NOT work and is blocked in the open position and, therefore, must be replaced.                                                                                                                                                                        | <br> |

### The packaged unit is unable to complete defrosting

| Cause                                                               | Solution                                                                                                        | Personnel                                                                                                                                                                      |
|---------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| The by-pass valve on the hot gas circuit is blocked.                | Check the supply and consequent correct opening of the valve on the hot gas by-pass during the defrost phase.   | <br>   |
| The hydraulic circuit valve is blocked (water-cooled version only). | Check the supply and consequent correct closing of the valve on the hydraulic circuit during the defrost phase. | <br> |

### Water leaking from the evaporator compartment / ice formation on the condenser compartment

| Cause                                                               | Solution                                                                                             | Personnel                                                                                                                                                                      |
|---------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| The drain pipe of the evaporator drain tray is blocked up with ice. | Check the positioning of the exhaust heater (the heating part must run along the entire drain pipe). |                                                                                           |
|                                                                     | Check operation of the exhaust heater.                                                               |                                                                                           |
| The machine is not placed in a level position.                      | Check that the machine is correctly installed to allow the drain pipes to drain condensing water.    | <br> |

## 9. Appendix

This section includes the following topics:

|                              |    |
|------------------------------|----|
| 9.1 Decommissioning .....    | 38 |
| 9.2 Technical features ..... | 39 |
| 9.3 Attachments .....        | 42 |
| Conformity .....             | 42 |

### 9.1 Decommissioning

#### 9.1.1 Required skills



#### 9.1.2 Safety



Always wear protective goggles, footwear, protective gloves and fitted clothes.

#### **DANGER!**

**Explosion/Burns.** Presence of flammable gas. During installation, adopt all the precautions required by legislation in force.

**Crushing.** Always use lifting equipment and accessories of adequate capacity for the load to be lifted and follow the lifting warnings given in this instruction manual.

**Falling from above.** Always use adequate means and accessories. Provide safe access to the installation area. Follow the warnings given in this instruction manual.

**Electrocution.** Always use adequate means and accessories. Follow the warnings given in this instruction manual.

**Cutting or abrasion.** Wear the personal protective equipment.

#### 9.1.3 Dismantling the machine

If the machine is to be relocated or has reached the end of its technical and operational life cycle, it must be dismantled. Dismantling procedure

1. Disconnect the energy sources.
2. Disassemble the various components.
3. If necessary, transport and temporarily store the machine in a suitable place.

#### 9.1.4 Scrapping the machine

If the machine has reached the end of its technical and operational life cycle, it must be scrapped. Correct recycling will help prevent potentially adverse consequences for the environment and people.

Scrap the machine by disassembling the various components, separating them according to the material they are made of and take them to the collection facilities indicated by the government or local public bodies.

## 9.2 Technical features

### 9.2.1 Dimensions

The dimensions vary with the power and are identified with the dimensions of the condensing fan unit (see "Code legend" on page 4).

### 9.2.2 Technical data applications in medium temperature

| Size                                          | -                 | AP40M-1Z-R2                   | AP50M-1A-R2 | AP75M-1B-R2 | X    | AP122M-2C-R2 | X                                | X                                | AP200T-3D-R2                      | X                                 |
|-----------------------------------------------|-------------------|-------------------------------|-------------|-------------|------|--------------|----------------------------------|----------------------------------|-----------------------------------|-----------------------------------|
|                                               |                   | 1x250                         |             |             |      | 1x300        |                                  |                                  | 1x350                             |                                   |
| Cold room Temperature*                        | °C                | from -5 to +15                |             |             |      |              |                                  |                                  |                                   |                                   |
| Dispersed Thermal Power **                    | W                 | 936                           | 1440        | 1940        | 2521 | 3132         | 3833                             | 4653                             | 5123                              | 6112                              |
|                                               | W                 | 360                           | 570         | 780         | 940  | 1200         | 1490                             | 1680                             | 1900                              | 2440                              |
| Absorption ***                                | A                 | 2.0                           | 3.1         | 4.3         | 5.1  | 6.5          | 8.1 (230/1/50)<br>2.7 (400/3/50) | 9.1 (230/1/50)<br>3.0 (400/3/50) | 10.3 (230/1/50)<br>3.4 (400/3/50) | 13.2 (230/1/50)<br>4.4 (400/3/50) |
|                                               | A                 | 3.9                           | 5.9         | 6.0         | 8.5  | 10.6         | 11.2<br>4.8                      | 13.1<br>5.7                      | 15.8<br>7.1                       | 20.3<br>9.0                       |
| Maximum Current                               | A                 |                               |             |             |      |              |                                  |                                  |                                   |                                   |
| Working Ambient Temperature*                  | °C                | from +5 to +43                |             |             |      |              |                                  |                                  |                                   |                                   |
| Storage Temperature                           | °C                | from -25 to +55               |             |             |      |              |                                  |                                  |                                   |                                   |
| Refrigerant                                   | -                 | R290                          |             |             |      |              |                                  |                                  |                                   |                                   |
| Refrigerant Charge                            | kg                | ≤ 0.150 per circuit           |             |             |      |              |                                  |                                  |                                   |                                   |
| GWP                                           | -                 | 3                             |             |             |      |              |                                  |                                  |                                   |                                   |
| Equivalent CO <sub>2</sub>                    | t CO <sub>2</sub> | ≤ 0.45                        |             |             |      |              |                                  |                                  |                                   |                                   |
| PS Hp                                         | bar (g)           | 24                            |             |             |      |              |                                  |                                  |                                   |                                   |
| PS Lp                                         | bar (g)           | 14.6                          |             |             |      |              |                                  |                                  |                                   |                                   |
| PED Category                                  | -                 | Article 4.3                   |             |             |      |              |                                  |                                  |                                   |                                   |
| Refrigeration circuit                         | -                 | Sealed hermetically           |             |             |      |              |                                  |                                  |                                   |                                   |
| Expansion unit                                | -                 | Mechanical thermostatic valve |             |             |      |              |                                  |                                  |                                   |                                   |
| Defrost Type                                  | -                 | Hot Gas                       |             |             |      |              |                                  |                                  |                                   |                                   |
| Compressor Type                               | -                 | Hermetic                      |             |             |      |              |                                  |                                  |                                   |                                   |
| Compressor Displacement                       | cm <sup>3</sup>   | 6.9                           | 12.2        | 16.8        | 21.0 | 27.8         | 2 x 16,8                         | 2 x 18,7                         | 2 x 21,0                          | 2 x 27.8                          |
| Power supply                                  | V-/Hz             | 230/1/50                      |             |             |      |              |                                  |                                  |                                   |                                   |
| Industrial plug 2P + E                        | A                 | 16                            |             |             |      |              |                                  |                                  |                                   |                                   |
| Industrial plug 3P + N + E                    | A                 | -                             |             |             |      |              |                                  |                                  |                                   |                                   |
| External protection circuit breaker (curve D) | A                 | 10                            |             |             |      |              |                                  |                                  |                                   |                                   |
| Protection Rating                             | -                 | IP 20                         |             |             |      |              |                                  |                                  |                                   |                                   |
| Power cable length                            | m                 | 2.5                           |             |             |      |              |                                  |                                  |                                   |                                   |
| Cold room light cable length                  | m                 | 5                             |             |             |      |              |                                  |                                  |                                   |                                   |
| Door micro switch cable length                | m                 | 2.5                           |             |             |      |              |                                  |                                  |                                   |                                   |
| BMS cable length                              | m                 | 2.5                           |             |             |      |              |                                  |                                  |                                   |                                   |

|                                    |             |             |             |      |             |      |      |             |      |
|------------------------------------|-------------|-------------|-------------|------|-------------|------|------|-------------|------|
|                                    | AP40M-1Z-R2 | AP50M-1A-R2 | AP75M-1B-R2 | X    | AP12M-2C-R2 | X    | X    | AP20M-3D-R2 | X    |
| Sound pressure (10 m)****          | 31.4        | 31.6        | 31.4        | 35.5 | 36.5        | 34.3 | 42.7 | 42.5        | 43.0 |
| Condenser-fan number and diameter  | -           | 1x254       |             |      | 1x300       |      |      | 1x350       |      |
| Condenser air flow rate            | m³/h        | 600         |             |      | 1200        |      |      | 2540        |      |
| Evaporator-fan number and diameter | -           | 1x200       |             |      | 2x200       |      |      | 1x350       |      |
| Evaporator air flow rate           | m³/h        | 500         |             |      | 1000        |      |      | 2740        |      |
| Evaporator air throw               | m           | 6,5         |             |      |             |      |      |             |      |
| Machine dimensions (LxWxH)         | mm          | 421x876x728 |             |      |             |      |      |             |      |
| Total weight WT                    | kg          | 55          | 59          | 60   | 83          | 90   | 105  | 124         | 135  |
| Total weight WT without packaging  | kg          | 43          | 47          | 48   | 61          | 68   | 83   | 95          | 106  |
| Total weight WS                    | kg          | 54          | 58          | 58   | 81          | 87   | 103  | 121         | 132  |
| Total weight WS without packaging  | kg          | 42          | 46          | 47   | 59          | 65   | 81   | 92          | 103  |

**Note (\*)**, with cold room temperature = +15 °C the maximum ambient temperature is 38 °C.  
**Note (\*\*)**, values measured at ambient temperature = 32 °C and cold room temperature NT = 0 °C LT = -20 °C.  
**Note (\*\*\*)**, values measured at condensing temperature = 50 °C and evaporating temperature NT = -10 °C LT = -30 °C.  
**Note (\*\*\*\*)**, Sound pressure levels are derived from the sound power level, conjecturing a hemispherical measuring surface, in free field, without effects of detectable reflections and taking the omnidirectional source into account. The machine to be measured is considered to be placed on the ground with the floor as the only reflective surface.

9.2.3 Technical data applications in low temperature

|                                |                   |              |        |                               |              |                                  |                                  |
|--------------------------------|-------------------|--------------|--------|-------------------------------|--------------|----------------------------------|----------------------------------|
|                                | AN120M-1C-R2      | AN170M-1D-R2 | X      | X                             | AN203T-2F-R2 | AN300T-3G-R2                     | AN400T-3H-R2                     |
| Size                           | -                 | 1x250        |        | 1x300                         |              |                                  | 1x350                            |
| Cold room Temperature          | °C                |              |        | from -25 to -5                |              |                                  |                                  |
| Dispersed Thermal Power *      | W                 | 1213         | 1654   | 1865                          | 2138         | 2733                             | 3829                             |
|                                | W                 | 650          | 910    | 940                           | 1090         | 1295                             | 1800                             |
| Absorption **                  | A                 | 3.5          | 5      | 5.1                           | 5.9          | 7.1 (230/1/50)<br>2.3 (400/3/50) | 9.8 (230/1/50)<br>3.3 (400/3/50) |
|                                |                   |              |        |                               |              | 12.4                             | 16.5                             |
| Maximum Current                | A                 | 5.9          | 8.3    | 8.7                           | 10.5         | 12.4                             | 16.5                             |
| Working Ambient Temperature*** | °C                |              |        | from +5 to +43                |              |                                  | 7.1                              |
| Storage Temperature            | °C                |              |        | from -25 to +55               |              |                                  |                                  |
| Refrigerant                    | -                 |              |        | R290                          |              |                                  |                                  |
| Refrigerant Charge             | kg                |              |        | ≤ 0.150 per circuit           |              |                                  |                                  |
| GWP                            | -                 |              |        | 3                             |              |                                  |                                  |
| Equivalent CO <sub>2</sub>     | t CO <sub>2</sub> |              | ≤ 0.45 |                               |              |                                  | ≤ 0.9                            |
| PS Hp                          | bar (g)           |              |        | 24                            |              |                                  |                                  |
| PS Lp                          | bar (g)           |              |        | 14.6                          |              |                                  |                                  |
| PED Category                   | -                 |              |        | Article 4.3                   |              |                                  |                                  |
| Refrigeration circuit          | -                 |              |        | Sealed hermetically           |              |                                  |                                  |
| Expansion unit                 | -                 |              |        | Mechanical thermostatic valve |              |                                  |                                  |
| Defrost Type                   | -                 |              |        | Hot Gas                       |              |                                  |                                  |
| Compressor Type                | -                 |              |        | Hermetic                      |              |                                  |                                  |

|                                               |        | AN120M-1C-R2 | AN170M-1D-R2 | X    | X           | AN203T-2F-R2                   | AN300T-3G-R2 | AN400T-3H-R2                   |
|-----------------------------------------------|--------|--------------|--------------|------|-------------|--------------------------------|--------------|--------------------------------|
| Compressor Displacement                       | cm3    | 18.7         | 27.8         | 27.8 | 33.4        | 2 x 21                         | 2 x 27.8     | 2 x 33.4                       |
| Power supply                                  | V/-/Hz | 230/1/50     |              |      |             |                                |              |                                |
| Industrial plug 2P + E                        | A      | 16           |              |      |             |                                |              |                                |
| Industrial plug 3P + N + E                    | A      | -            |              |      |             |                                |              |                                |
| External protection circuit breaker (curve D) | A      | 10           |              | 16   |             | 16 (230/1/50)<br>10 (400/3/50) | 16           | 20 (230/1/50)<br>16 (400/3/50) |
| Protection Rating                             | -      | IP 20        |              |      |             |                                |              |                                |
| Power cable length                            | m      | 2.5          |              |      |             |                                |              |                                |
| Cold room light cable length                  | m      | 5            |              |      |             |                                |              |                                |
| Door micro switch cable length                | m      | 2.5          |              |      |             |                                |              |                                |
| Door heater cable length                      | m      | 2.5          |              |      |             |                                |              |                                |
| BMS cable length                              | m      | 2.5          |              |      |             |                                |              |                                |
| Sound pressure (10 m)***                      | dB(A)  | 31.3         | 32.8         | 32.8 | 35.5        | 35.3                           | 42.3         | 42.5                           |
| Condenser-fan number and diameter             | -      | 1x254        |              |      | 1x300       |                                |              | 1x350                          |
| Condenser air flow rate                       | m3/h   | 600          |              |      | 1200        |                                |              | 2540                           |
| Evaporator-fan number and diameter            | -      | 1x200        |              |      | 2x200       |                                |              | 1x350                          |
| Evaporator air flow rate                      | m3/h   | 500          |              |      | 1000        |                                |              | 2740                           |
| Evaporator air throw                          | m      | 6,5          |              |      |             |                                |              |                                |
| Machine dimensions (LxWxH)                    | mm     | 421x876x728  |              |      | 671x976x828 |                                |              | 711x1255x828                   |
| Total weight WT                               | kg     | 60           | 68           | 89   | 89          | 106                            | 134          | 135                            |
| Total weight WT without packaging             | kg     | 48           | 56           | 67   | 67          | 84                             | 105          | 106                            |
| Total weight WS                               | kg     | 58           | 66           | 86   | 86          | 103                            | 130          | 131                            |
| Total weight WS without packaging             | kg     | 46           | 54           | 64   | 64          | 81                             | 101          | 102                            |

**Note (\*)** values measured at ambient temperature = 32 °C and cold room temperature NT = 0 °C LT = -20 °C.  
**Note (\*\*)** values measured at condensing temperature = 50 °C and evaporating temperature NT = -10 °C LT = -30 °C.  
**Note (\*\*\*)** Sound pressure levels are derived from the sound power level, conjecturing a hemispherical measuring surface, in free field, without effects of detectable reflections and taking the omnidirectional source into account. The machine to be measured is considered to be placed on the ground with the floor as the only reflective surface.

## 9.3 Attachments

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### 9.3.1 Documents attached to the manual

- Declaration of conformity
- Electrical diagram of the packaged unit
- Refrigerating diagram
- Controller manual

## Conformity

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### Declaration of conformity

Conformity



Directives List of Directives for which the product is declared to be conforming:

- 2014/68/EU (Pressure Equipment Directive)
- 2014/35/EU (Low Voltage Directive)
- EMC 2014/30/EU (Electromagnetic Compatibility Directive)
- 2006/42/EC (Machinery Directive)
- RED 2014/53/EU (Radio Equipment Directive)

**Note:** the original declaration of conformity accompanies the machine.