BEST W R290

Wall-mounted packaged unit for cold rooms

Instruction manual| v. 02
Instructions translated from the original

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

Ownership of information

Requests for authorisations, additional copies of this manual or technical information about it, must be addressed to:

Combisteel
Verlengde Gildenweg 20
8304 BK Emmeloord
The Netherlands
info@combisteel.com
www.combisteel.com
+31 (0)30 285 00 90

Contents

Warranty and assistance

Warranty terms

Combisteel guarantees the product against any material or manufacturing defects for one year **from the date of issue of the sales invoice or the date of registration of the packaged unit (see controller manual). Registration must take place within three months of the invoice date. If it is not registered, the date of issue of the sales invoice will apply.**

If defects in materials or workmanship are noted during this period, Combisteel will repair or replace the defective components under the terms and conditions set out below, with no charge for labour or spare parts.

The expenses to ship the packaged unit to the Customer Assistance Service are charged to the Customer.

Compensation will not be acknowledged for damage, of any kind, which the customer should be required to pay third parties for.

***Note**: the warranty is only valid if the defects are claimed within the indicated time frames.*

Warranty exclusions

The following are excluded from the warranty:

- periodic maintenance operations
- damage resulting from improper use, including but not limited to:
  - incorrect power supply
  - using the product for purposes other than those intended
  - repairs carried out by unauthorised personnel or by the Customer himself
- defects resulting from modifications, adaptations or repairs made to the product by the Customer or by unauthorised personnel
- fortuitous and accidental events, such as falls and infiltration of liquids
- natural events and malicious or negligent actions

Post-warranty assistance

After the warranty time frames have elapsed, assistance will be provided by Combisteel with a charge for the replaced parts and labour and transport expenses in force at the time.

Warranty invalidation

The warranty is immediately invalidated if the model or serial number indicated on the product has been modified, deleted, removed or anyhow made illegible.

Assistance

***Note**: for information on warranty terms, contact Combisteel.*

In case of a malfunction or fault or to find out about the terms of the warranty, the exclusions, the forfeiture of the warranty and how to apply the warranty and request assistance, contact Combisteel or the dealer in the relevant zone.

Conformity

Declaration of conformity

Conformity CE EAC

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:

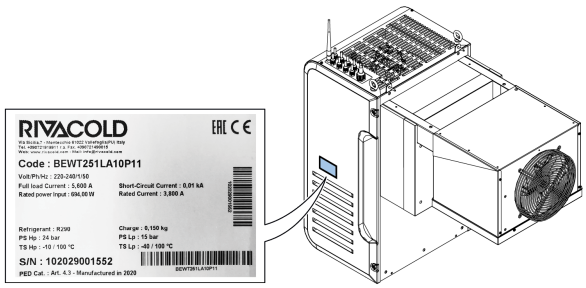
1.1 Identification data

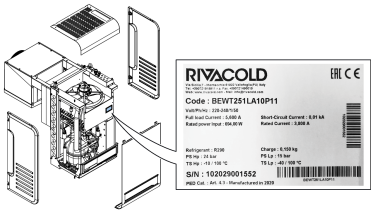
1.1.1 Manufacturer's contacts

Combisteel
Verlengde Gildenweg 20
8304 BK Emmeloord
The Netherlands
Tel: +31 (0)30 285 00 90
Fax: -
e-mail: info@combisteel.com

1.1.2 Identification

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





1.1.3 Code legend

BE	Range. **BE**: BEST
WT/WS	**WT** (trough wall): with plug-in insulating panel fitted or removed **WS**: wall saddle
25/ 30/ 35	Housing/frame dimensions. **25**: for condensing unit fan with a 254 mm diameter, **30**: for condensing unit fan with a 300 mm diameter, **35**: for condensing unit fan with a 350 mm diameter
1/ 2	Number of compressors
M/L/V	Application. **M**: medium temperature, **L**: low temperature, **V**: variable speed
A/W	Type of condensing. **A**: air **W:** water
05 - 80	Progressive number that identifies the different power outputs
P	Refrigerant gas. **P:** R290
1/ 2	Laminating part. **1**: mechanical thermostat, **2**: electronic thermostat
1/ 2	Voltage. **1**: onephase, **2**: three-phase
00	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 Combisteel.

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

1.2.3 Data of the instruction manual

Packaged unit: BEST W R290

Title: Instruction manual

Code: 9600-0182

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
9600-0182	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.	9600-0182	08-2024
Installation Manual		9600-0134	
Controller Manual			2024
Electrical diagram		-	-
IoT Activation Instructions (optional)		9600-0073	2022

2. Safety

This section includes the following topics:

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
 COMPANY **Manufacturer's personnel**	All operations	Technical personnel employed or authorised by the manufacturer.
 **Mechanical maintenance engineer**	• Installation and decommissioning • Maintenance excluding works on the electrical system • Solving problems that cause blockages	Has extensive technical knowledge in the mechanical and pneumatic fields. Understands the technical drawings and the refrigerating diagram.
 **Electrical maintenance engineer**	• Electrical connections during installation and decommissioning • Solving problems that cause faults in the electrical system	Has extensive technical knowledge in the electrical field. Understands the wiring diagrams and works inside live electrical boxes, junction boxes and control equipment. Understands the refrigerating diagram.
 **Operator**	• Operate using the controls • Clean the packaged unit • Adjust the equipment after receiving the relevant instructions • Change certain parameters but only after receiving the relevant instructions	Has generic technical knowledge and experience in managing the packaged unit.

Symbol	Operations allowed	Skills
 Driver	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.	• Always use lifting equipment and accessories of adequate capacity for the load to be lifted. • Prevent unauthorised people from accessing the area near the packaged unit. • Follow the warnings given in this instruction manual concerning lifting. • Check that the wall where the packaged unit is installed is suitable for supporting the packaged unit.
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.	• Wear the personal protective equipment. • Isolate the packaged unit from the power supply.

2.3.4 Electrical residual risks

Risk	When it occurs	How to avoid it
Electrocution	During installation, connection, maintenance and dismantling.	• The electrical connection and disconnection must only be carried out by the electrical maintenance engineer. • Wear the personal protective equipment.

2.3.5 Thermal residual risks

Risk	When it occurs	How to avoid it
Low temperatures	During maintenance in the cold room.	• Wear the personal protective equipment. • Follow the instructions for adjustment, cleaning and maintenance given in this instruction manual. • Take work breaks to prevent long exposure to excessively low temperatures.
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

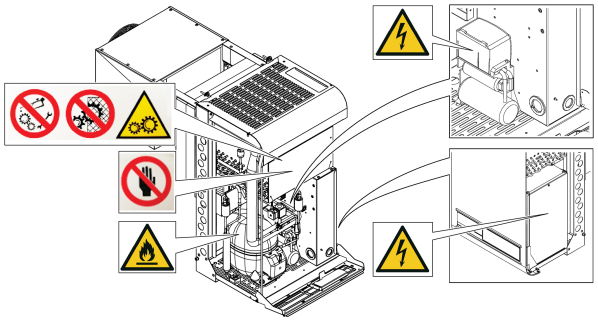
2.4.1 Generic warnings

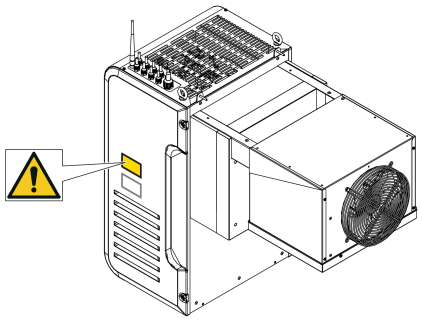
Clean the labels if dirty and replace them if detached or damaged.

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:

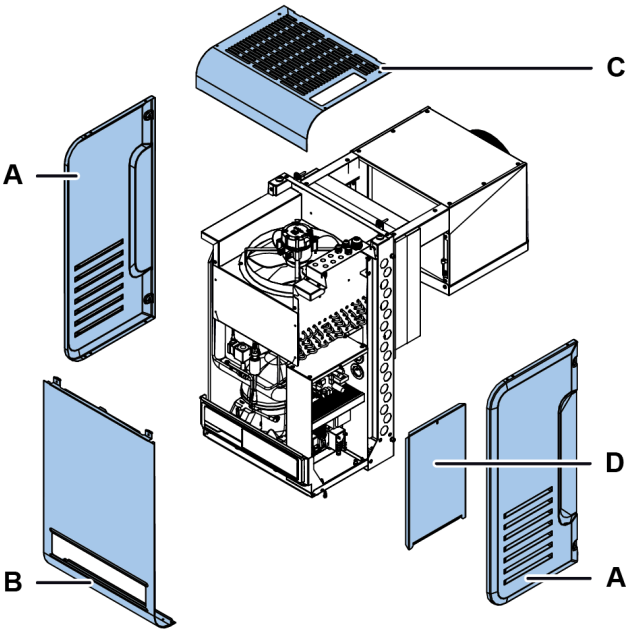




Symbol	Description
	Do not repair moving parts
	Do not remove safety devices
	Do not clean the condenser by hand
	Moving parts
	Flammable gas
	Electrocution
	Disconnect the power supply before performing maintenance

2.5 Fixed guards

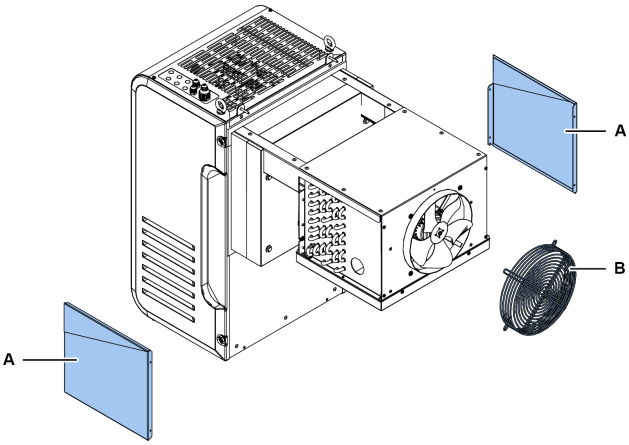
2.5.1 Condensing unit



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

3.1.1 Intended use

BEST W R290 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 temperature 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 °C ≤ Tcold room ≤ +15 °C
  - LT (low temperature): -25 °C ≤ Tcoldroom ≤ -5 °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 ≤ 150 g to allow installation to take place anywhere without restrictions, as required by the reference standard.

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

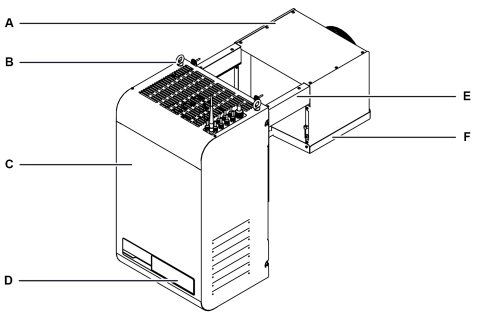
3.2.3 Optional extras

The packaged unit options are as follows:

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

3.3 Description of the packaged unit

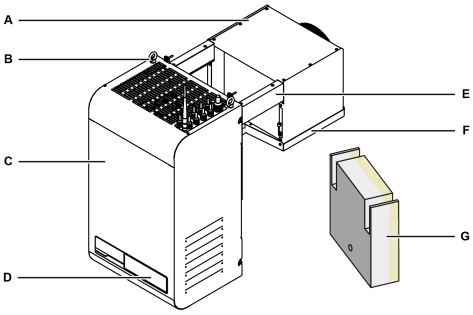
3.3.1 BEST WS components for saddle installation



Part	Description
A	Evaporating part
B	Eyebolts

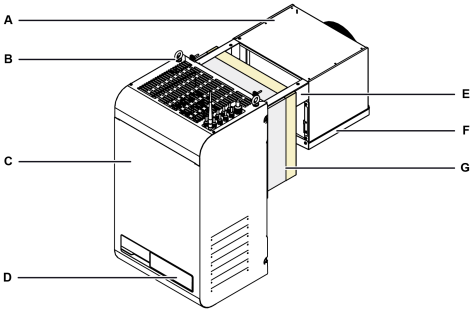
Part	Description
C	Condensing unit part
D	Control panel
E	Brackets
F	Evaporator tray

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



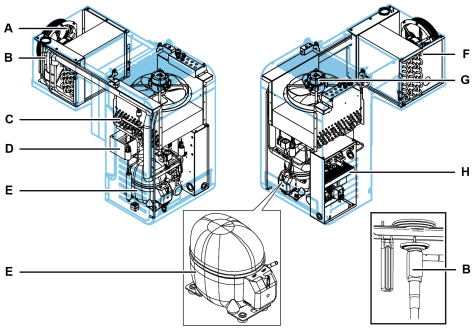
Part	Description
A	Evaporating part
B	Eyebolts
C	Condensing unit
D	Control panel
E	Brackets
F	Evaporator tray
G	Plug-in insulating panel

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



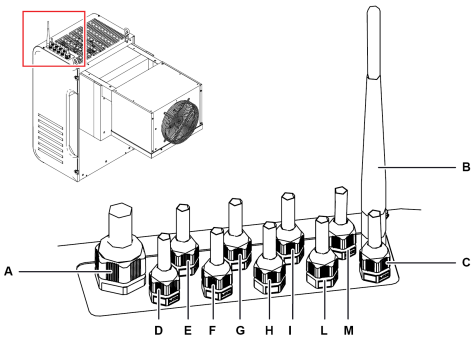
Part	Description
A	Evaporating part
B	Eyebolts
C	Condensing unit
D	Control panel
E	Brackets
F	Evaporator tray
G	Plug-in insulating panel

3.3.4 Internal Components



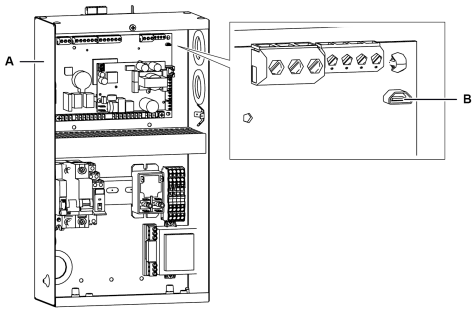
Part	Description
A	Ventilation unit of the evaporating part
B	Thermostatic valve
C	Condenser
D	Condensate drain tray
E	Compressor
F	Evaporator
G	Condensing unit ventilation unit
H	Electrical box

3.3.5 Connections



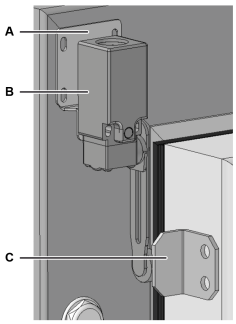
Part	Description
A	Power supply
B	IoT Wi-Fi gateway antenna
C	BMS (Building Management System)
D	Cold room light
E	Alarm
F	Door heater (only for low temperature)
G	Free position
H	IoT 2G gateway antenna
I	Master & slave
L	Remote control panel
M	Door micro switch

3.3.6 USB port connection (if present)



Part	Description
A	Electrical box
B	USB micro port

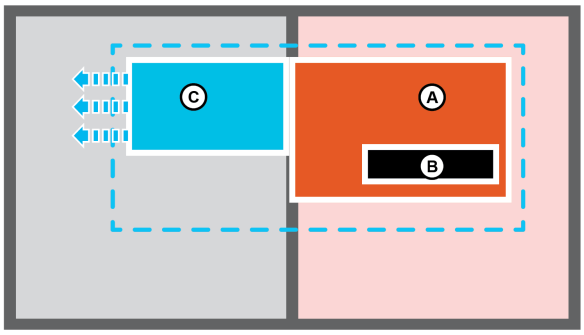
3.3.7 Door micro switch components



Part	Description
A	Fixing plate
B	Door micro switch
C	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 Combisteel world.
- **Select**: to know all the Combisteel products.
- **Documents**: to download the sales and technical documentation relating to Combisteel 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 Combisteel 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

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.

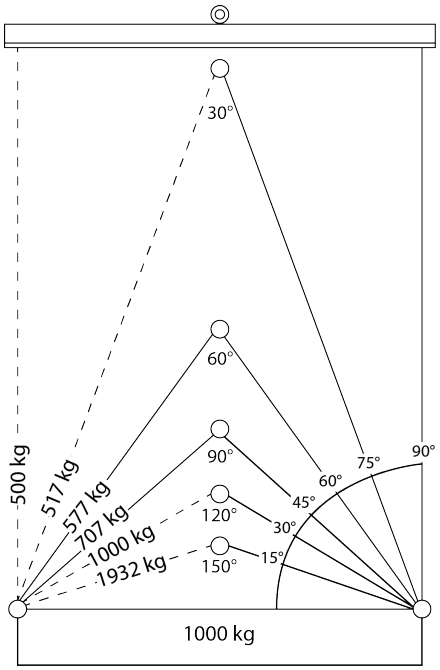
4.1.5 Generic warnings

- 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:

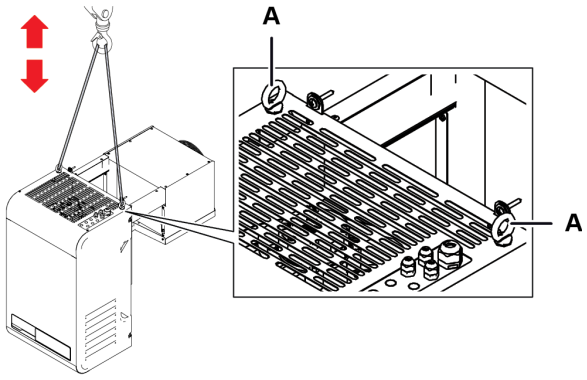
- packaged unit
- door micro switch with retainer
- fastening kit
- cold room light

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

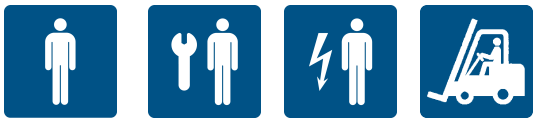
5.1 Installation warnings

5.1.1 Foreword

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

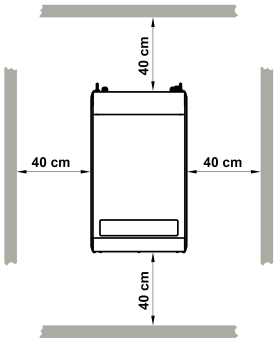
The packaged unit must only be installed inside rooms that fully shelter it.

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 37.

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 Combisteel.

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 37 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 37.

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 37):

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

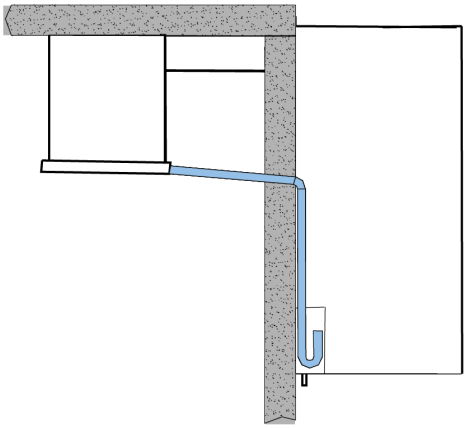
For connection use:

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

For open systems, use packaged unit with pressostatic valve.

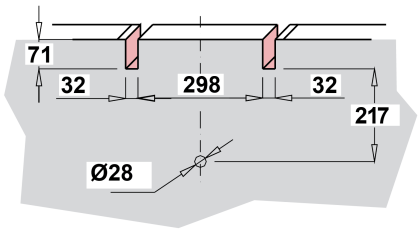
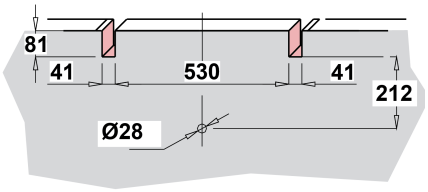
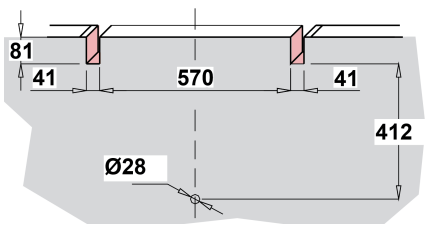
5.4 Install the BEST WS (wall saddle)

5.4.1 Result of the installation

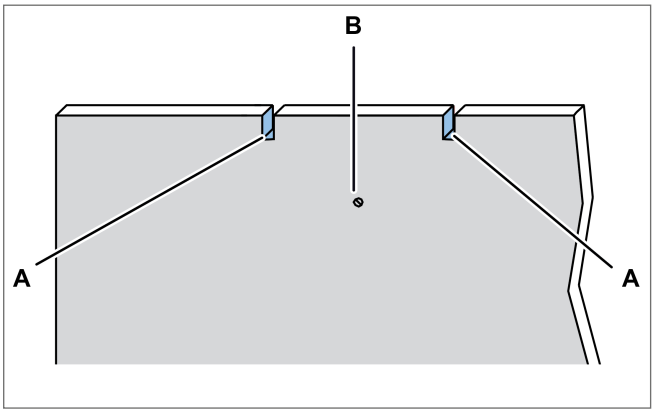


5.4.2 Dimensions of the grooves to be made in the wall

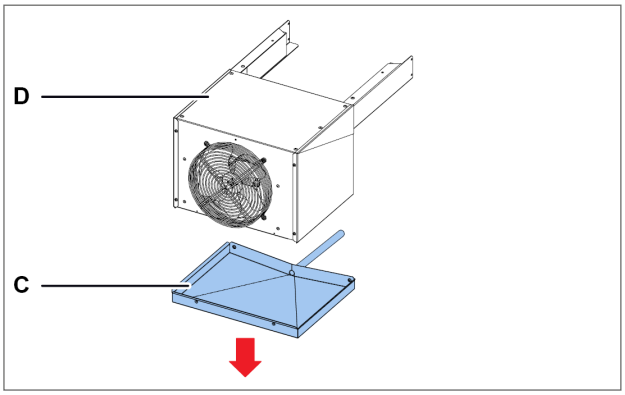
Depending on the dimensions of the packaged unit, make two grooves on the upper end of the cold room wall. Use the packing template to proceed more quickly (measurements in mm).

BEWS25 Codes	BEWS30 Codes	BEWS35 Codes
		

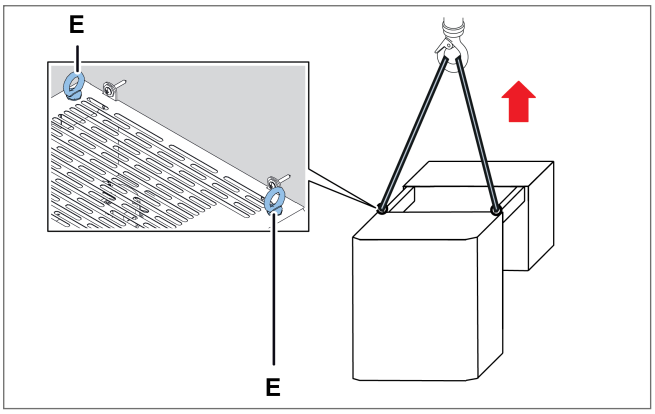
5.4.3 Procedure



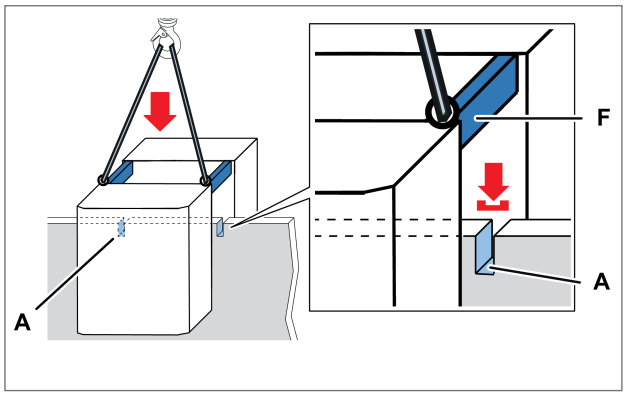
1. Make the grooves **[A]** and a hole **[B]** in the wall to drain water, using the packaging template.



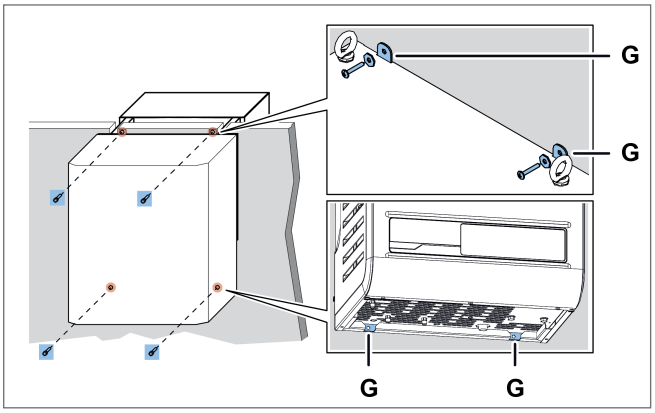
2. Undo the screws of the tray **[C]** and remove it from the evaporating part **[D]**.



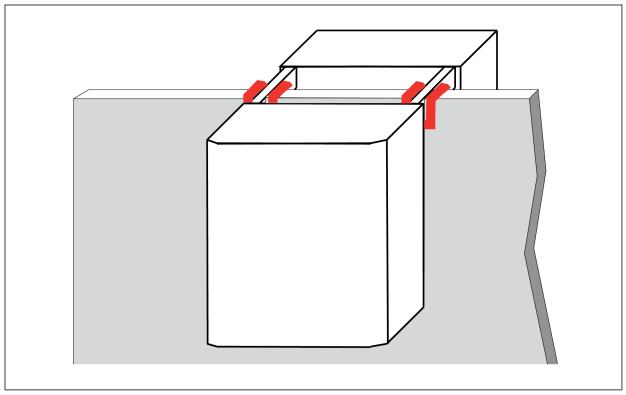
3. Lift the packaged unit using the eyebolts **[E]**.



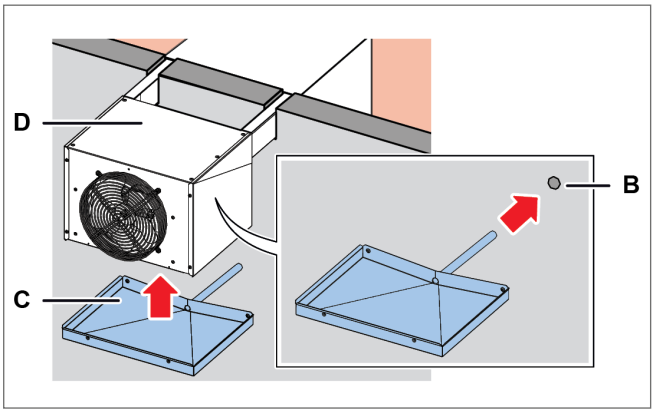
4. Set the packaged unit in place, inserting the brackets **[F]** into the grooves **[A]** of the wall.



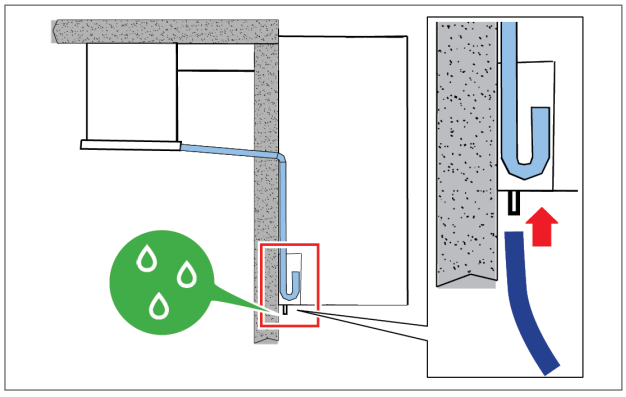
5. Secure the packaged unit to the wall by inserting the screws in the holes **[G]**.



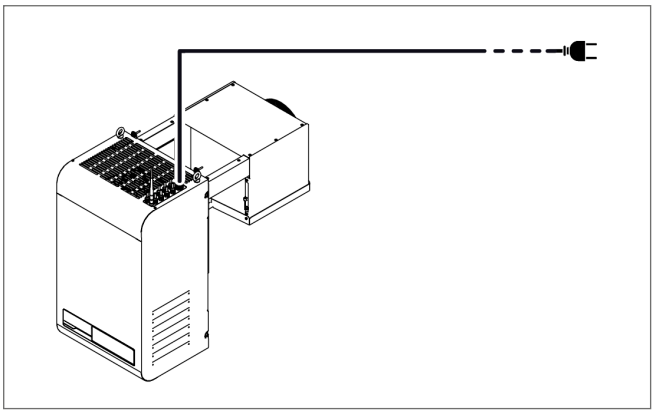
6. Seal the grooves in contact with the packaged unit and the brackets with silicone.



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



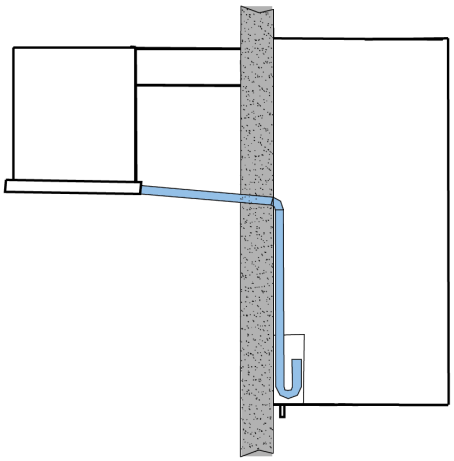
8. Connect the 5/8" (15.9 mm) diameter condensate drain overflow pipe.
9. Wire the cold room light by connecting it to the packaged unit with the already prepared cable.
10. Install the door micro switch (see "Secure the door micro switch" on page 20).



11. Connect electricity and turn on (see "Starting and stopping" on page 23).

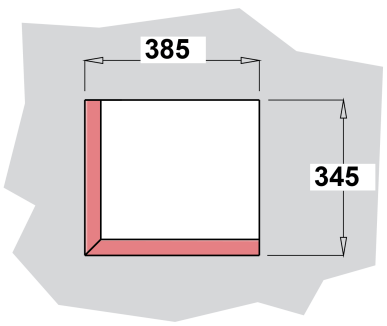
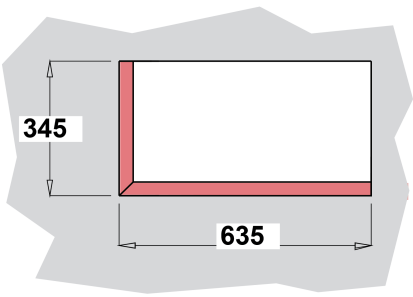
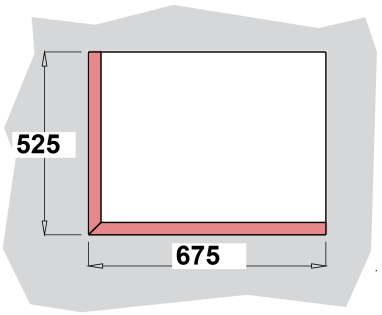
5.5 Install the BEST W (with plug-in insulating panel)

5.5.1 Result of the installation

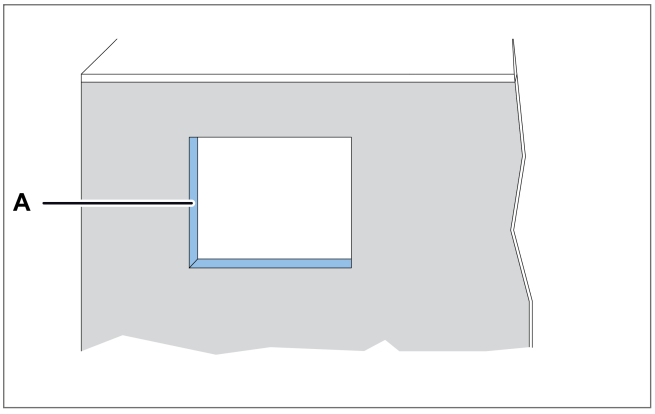


5.5.2 Dimensions of the window to be made in the wall

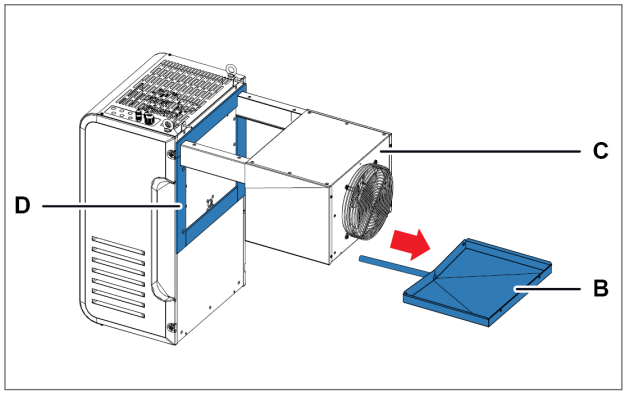
Depending on the size of the packaged unit, cut a window in the cold room wall with the following dimensions (in mm). Use the packaging template to proceed more quickly.

BEW25 Codes	BEW30 Codes	BEW35 Codes
		

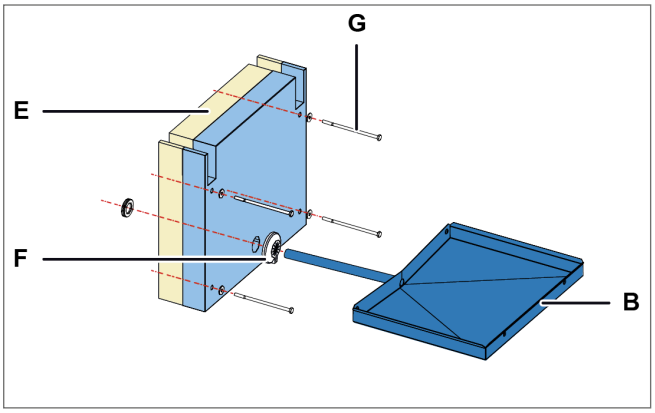
5.5.3 Procedure



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

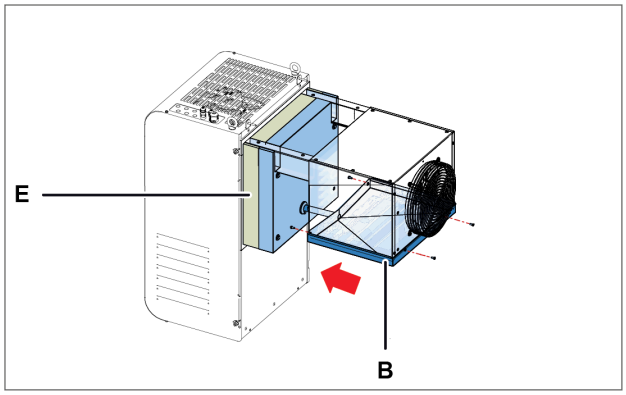


2. Unscrew the tray screws **[B]** and remove it from the evaporating part **[C]**, paying attention to the drain heater.
3. Apply the gaskets **[D]** supplied with the plug-in insulating panel kit.

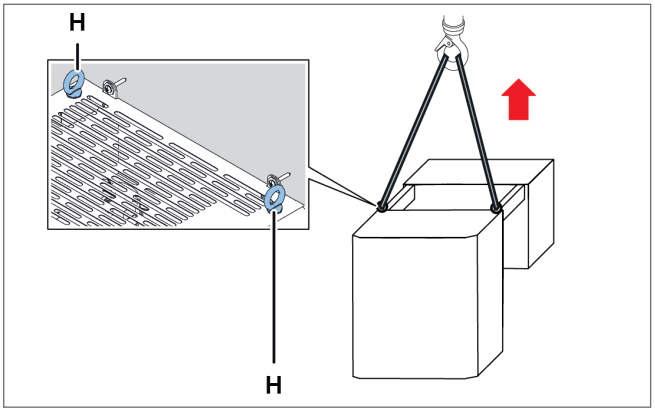


4. Place the plug-in insulating panel **[E]** between the brackets of the packaged unit.
5. Insert the tube of the tray **[B]** with the gasket **[F]** together with the screws **[G]** into the plug-in insulating panel.

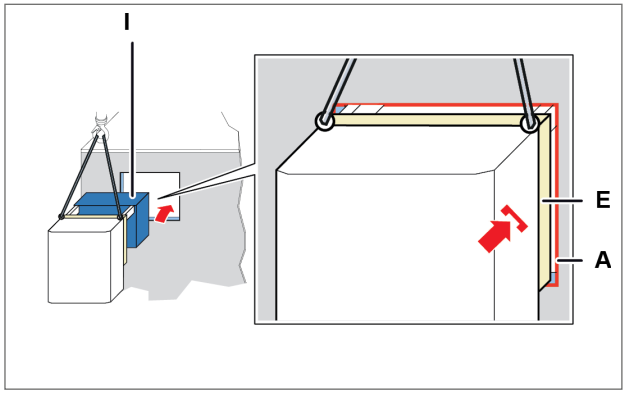
***NOTICE**: pay attention to the correct positioning of the drain heater.*



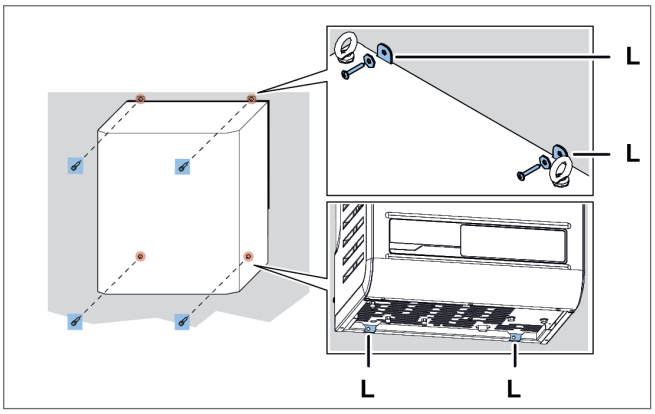
6. Secure the plug-in insulating panel **[E]** and the tray **[B]** to the packaged unit.



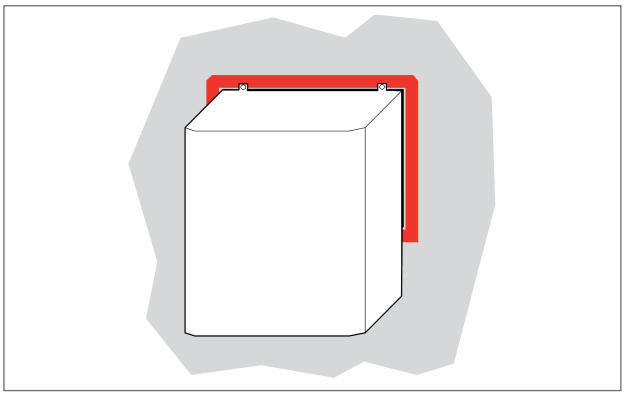
7. Lift the packaged unit using the eyebolts **[H]**.



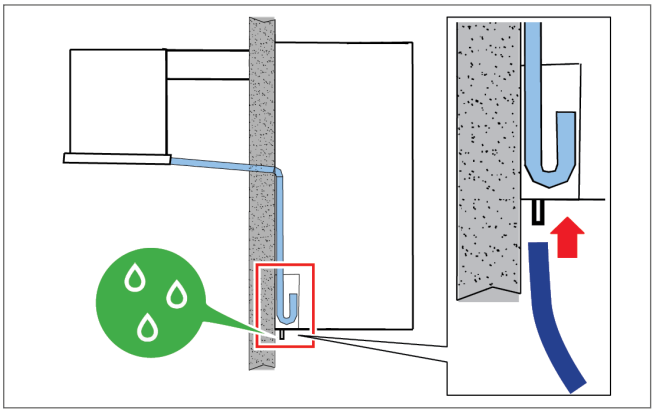
8. Insert the evaporating part **[I]** and recess the plug-in insulating panel **[E]** in the window **[A]** of the wall.



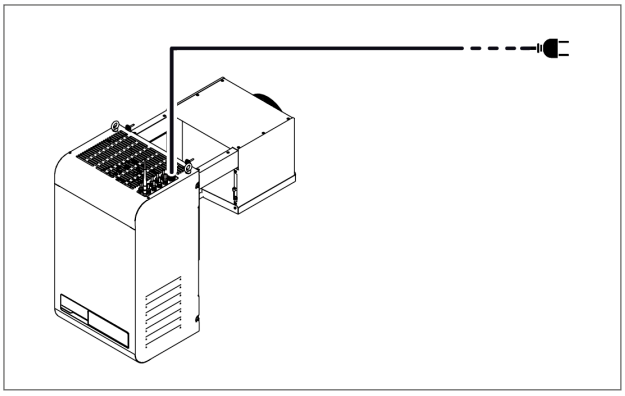
9. Secure the packaged unit to the wall by inserting the screws in the holes **[L]**.



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



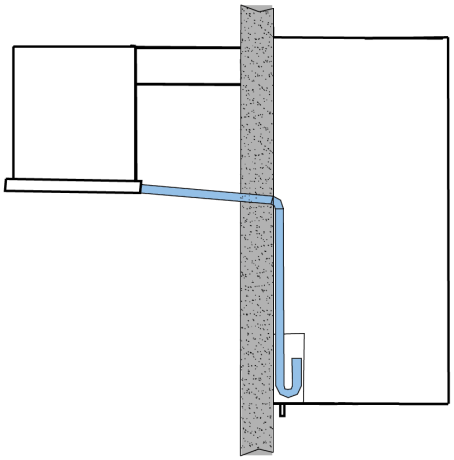
11. Connect the overflow tube to drain the condensate.
12. Wire the cold room light by connecting it to the packaged unit with the already prepared cable.
13. Install the door micro switch (see "Secure the door micro switch" on page 20).



14. Connect electricity and turn on (see "Starting and stopping" on page 23).

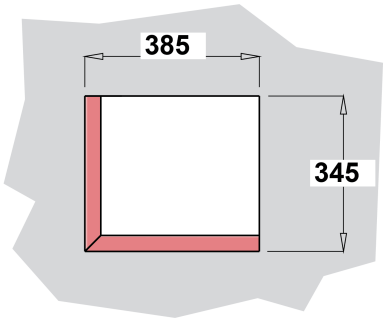
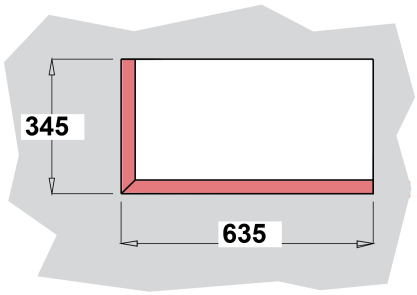
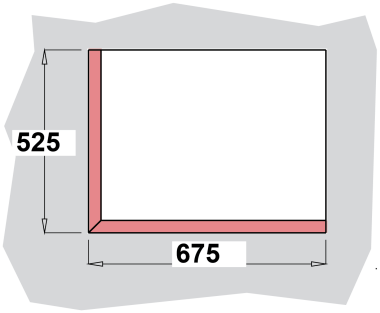
5.6 Install the BEST WT (with the pre-fitted plug-in insulating panel)

5.6.1 Result

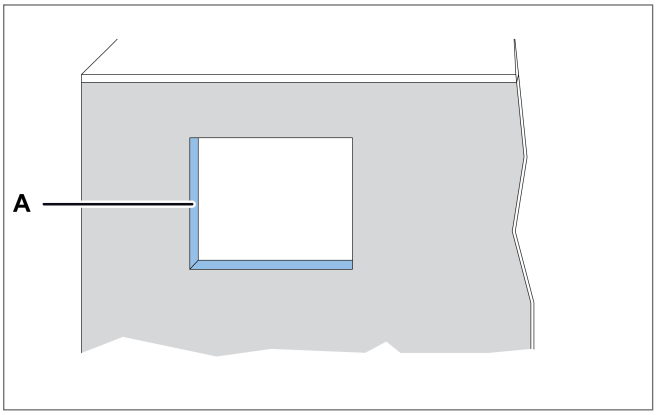


5.6.2 Dimensions of the window to be made in the wall

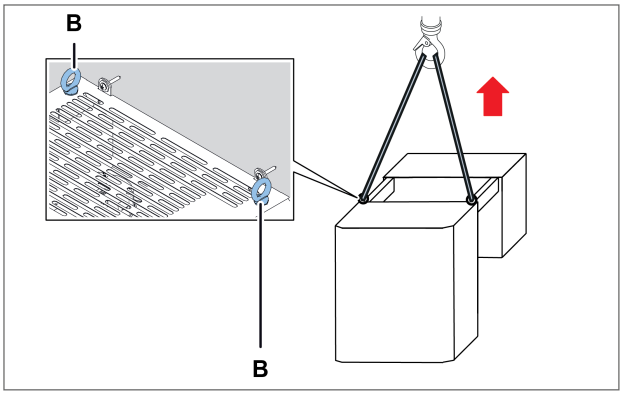
For this type of installation, depending on the dimensions of the packaged unit, a window with the following dimensions in millimetres (mm) must be made in the cold room wall chosen for installation:

BEWT25 Codes	BEWT30 Codes	BEWT35 Codes
		

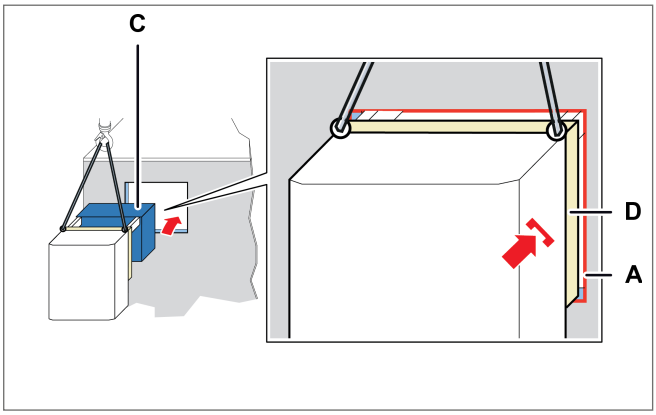
5.6.3 Procedure



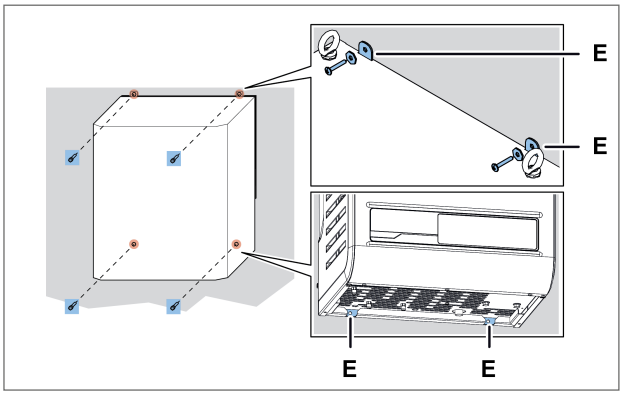
1. On the wall of the cold room, make a window **[A]** using the template in the packaging.



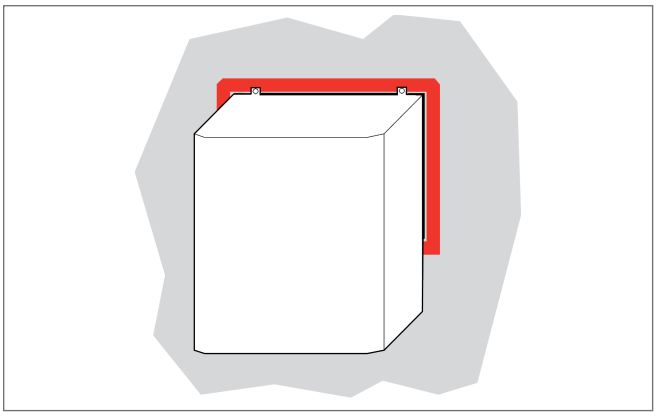
2. Lift the packaged unit using the eyebolts **[B]**.



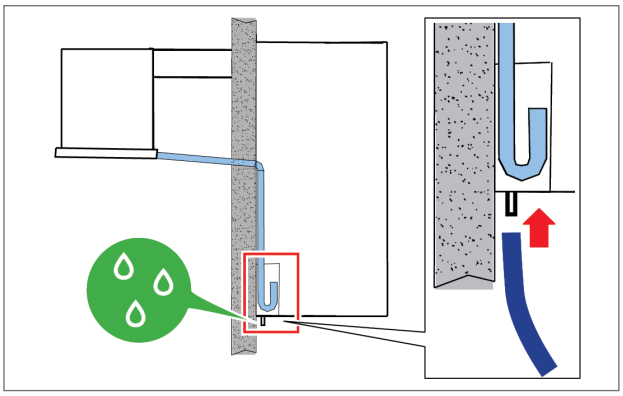
3. Insert the evaporating part **[C]** and recess the plug-in insulating panel **[D]** in the window **[A]** of the wall.



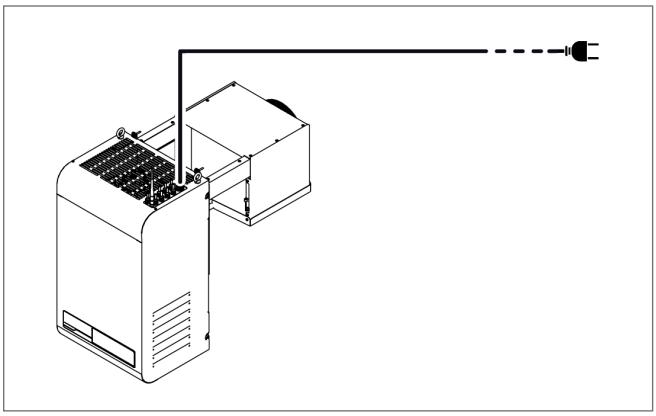
4. Secure the packaged unit with the screws **[E]**.



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 23).

5.7 Secure the door micro switch

5.7.1 Safety

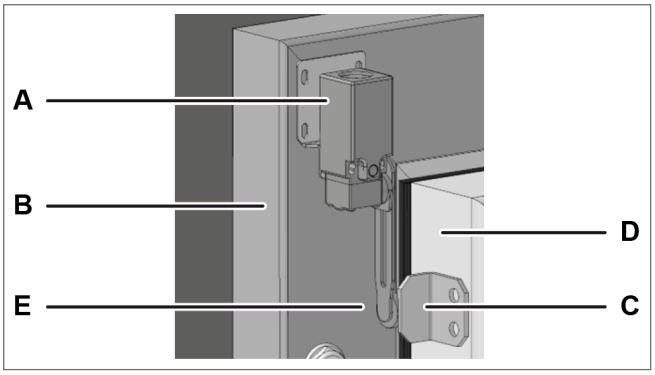
⚠ CAUTION

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.

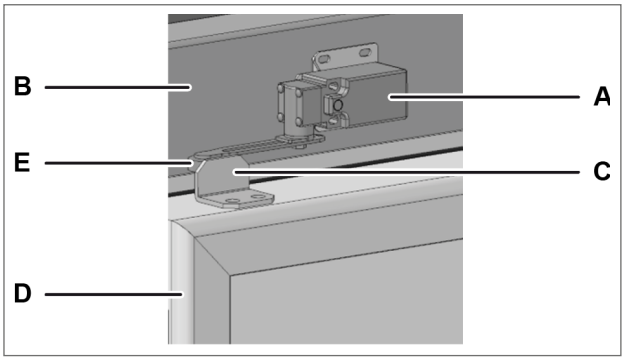
NOTICE

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

5.7.2 Procedure with hinged door



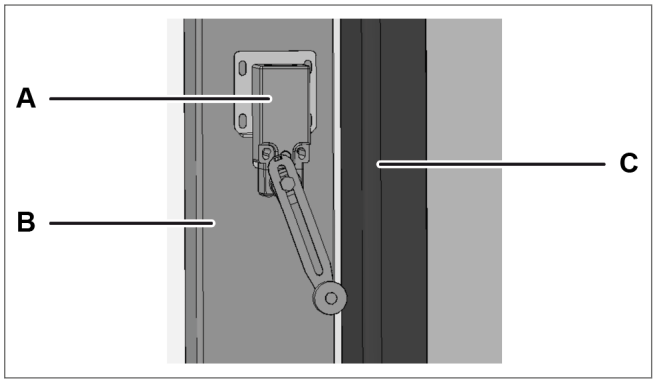
Vertical installation



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 13.
2. Once connected, the display lights up.
3. Switch on the packaged unit (see"Starting and stopping" on page 23).

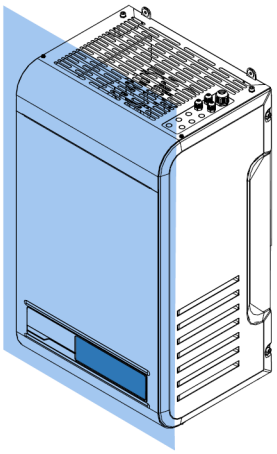
NOTICE: *Only start the machine when the ambient temperature is below 32°C. For water-cooled versions, the temperature must be below 37°C.*

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

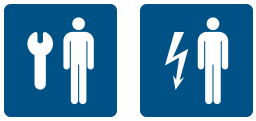
For a complete list of electronic control commands and functions, please refer to the controller manual.

7. Maintenance

This section includes the following topics:

7.1 Maintenance warnings

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 Combisteel 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

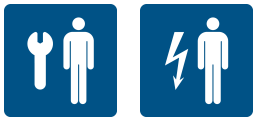
Task	Component	Procedure	Time indicative [min]
Check	Packaged unit	Check that the packaged unit is in good condition.	5
Cleaning	Evaporating part and condensing unit	Clean as needed.	30

7.2.4 Weekly operations

Task	Component	Procedure	Time indicative [min]
Defrosting	Evaporator	If there is ice on the evaporating part: 1. Perform manual defrosting (see controller manual). 2. Repeat the procedure until completely defrosted. 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

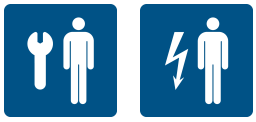
Task	Component	Procedure	Time indicative [min]
Check	Metalwork	• Check that all metal surfaces are in good condition. • Check that the screws are tightened correctly.	10
	Electrical cables	Check that the electrical cables are intact. If any cuts or cracks are found, immediately replace the power cable 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 Combisteel.	30
Cleaning	Evaporator	Clean in the following cases: • as needed • if dust or grease is noted	15
	Condenser (air-cooled version only)		

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 28)
Checks	Hydraulic circuit (water-cooled version only)	• Check that there are no leaks in the circuit. • Check the integrity of the insulation.
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 Combisteel.

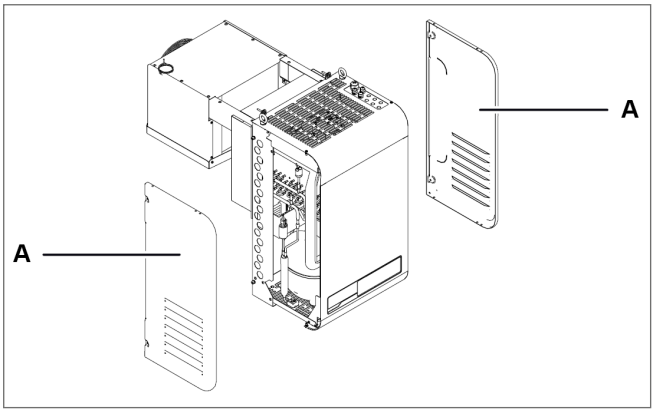
7.4.3 What to do

In case of damage or a malfunction, consult the "Installation and operation troubleshooting" on page 33 or contact Combisteel.

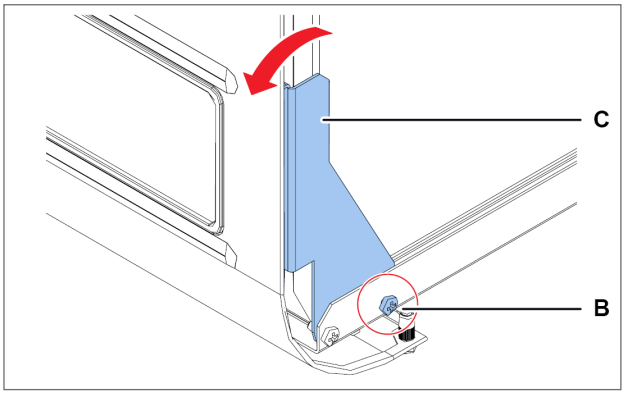
7.5 Remove the front panel

7.5.1 Required skills

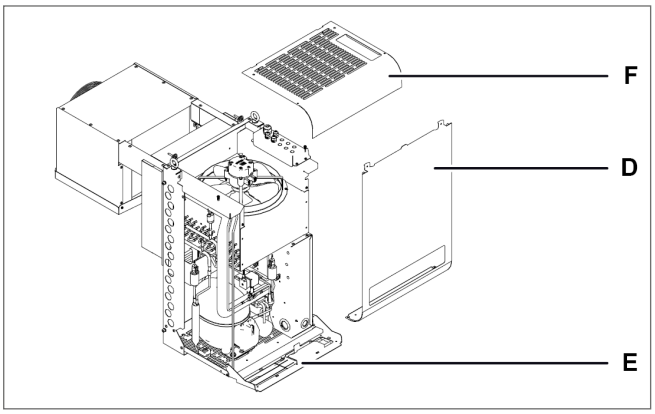
7.5.2 Procedure



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

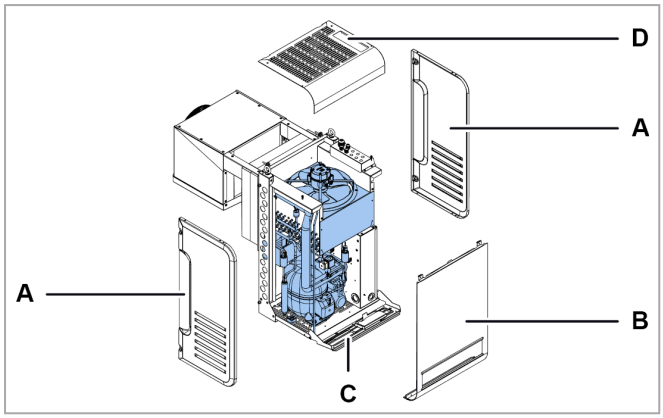
7.6.2 When to check or replace

Perform this procedure when problems are found on the condensing unit components (see "Installation and operation troubleshooting" on page 33).

7.6.3 Warning

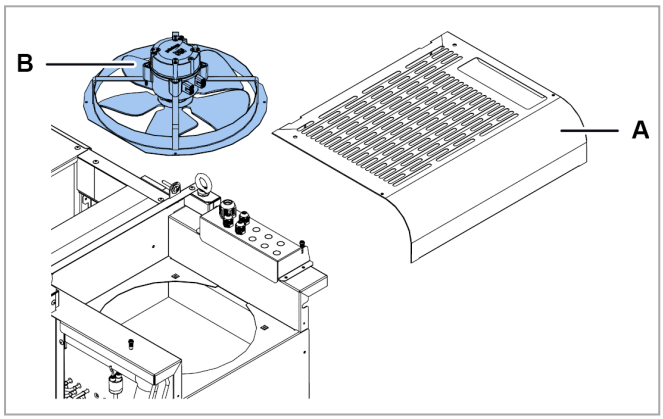
Check or replace the components following the instructions, frequency and all indications in this manual and in the attached documentation. If necessary, contact Combisteel assistance.

7.6.4 Checking or replacing internal components of the condensing unit



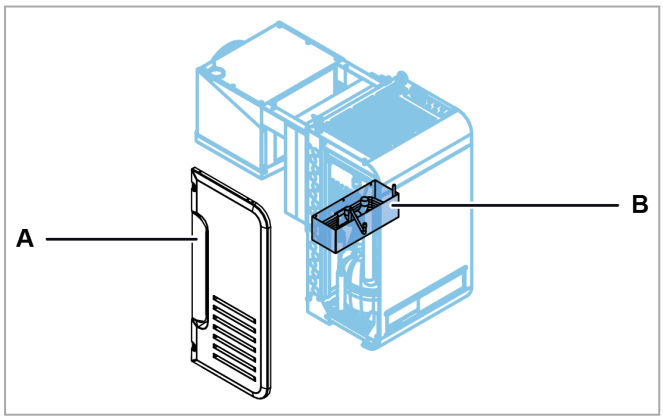
1. Remove the side panels **[A]**.
2. Remove the front panel **[B]** and lower the controller panel **[C]** and if necessary, remove the top panel **[D]** (see "Remove the front panel" on page 26).
3. Check or replace the internal components of the condensing unit.
4. Set all the panels back in place.

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

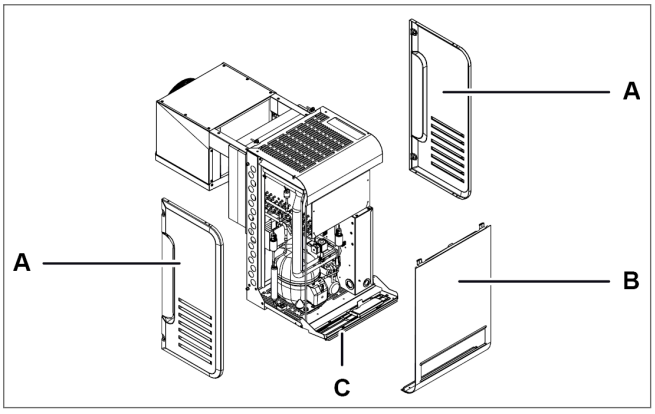


1. Remove the left side panel **[A]**
2. Check the condensate drain tray **[B]**.
3. Set the panel back in place.

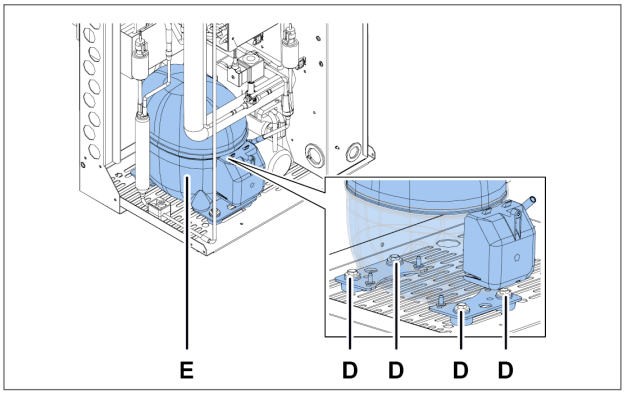
7.6.7 Check the compressor noise

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

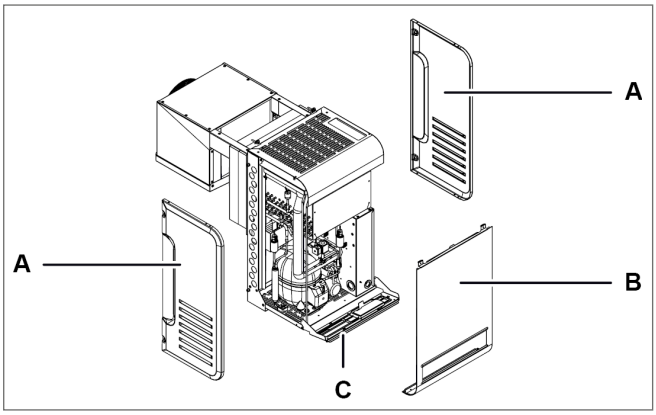


1. Remove the side panels **[A]**.
2. Remove the front panel **[B]** (see "Remove the front panel" on page 26).
3. Lower or if necessary, remove the controller panel **[C]**.

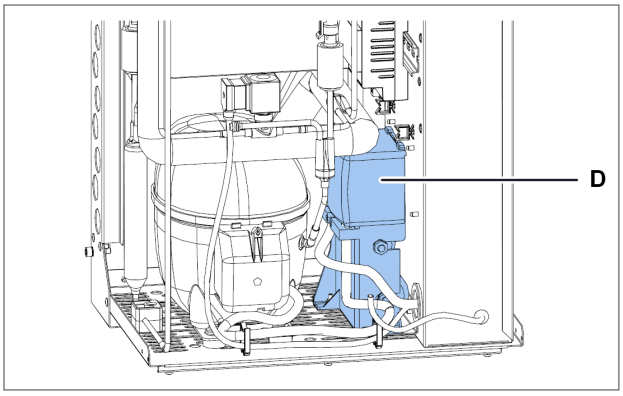


4. Undo the screws **[D]** and remove the compressor **[E]**, removing all the components that prevent its removal.
5. Insert the new compressor, securing it with the screws and put all the other components back in place.
6. Set all the panels back in place.

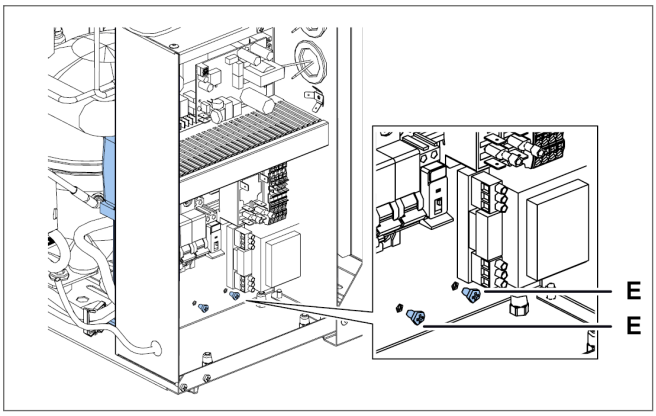
7.6.9 Replace compressor housing



1. Remove the side panels **[A]**.
2. Remove the front panel **[B]** (see "Remove the front panel" on page 26).
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

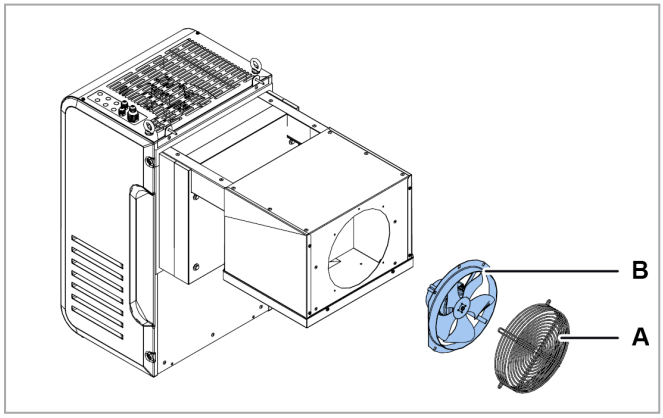
7.7.2 When to check or replace

Perform this procedure when problems are found on the evaporating part components (see "Installation and operation troubleshooting" on page 33).

7.7.3 Warning

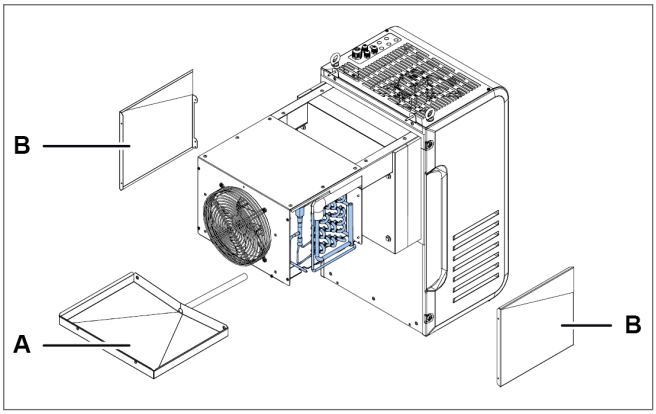
Check or replace the components following the instructions, frequency and all indications in this manual and in the attached documentation. If necessary, contact Combisteel assistance.

7.7.4 Checking or replacing the fan unit

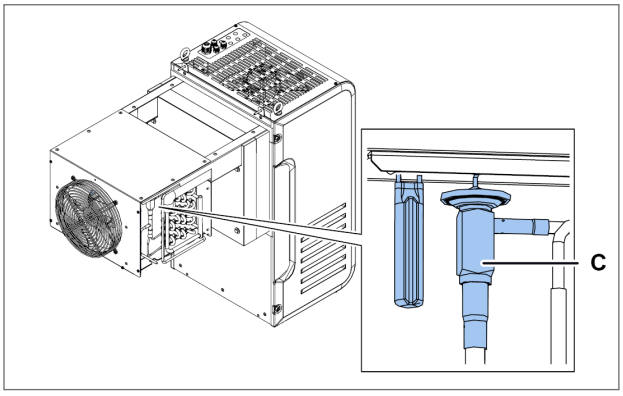


1. Remove the la grid **[A]**.
2. Check or replace the fan unit of the evaporating part **[B]**.
3. Replace the damaged component with an original spare part and follow the enclosed instructions.
4. Put the condenser-fan motor and grid back in place.

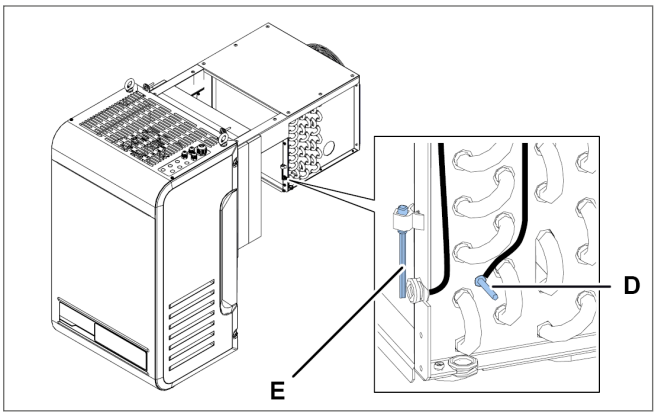
7.7.5 Checking or replacing components



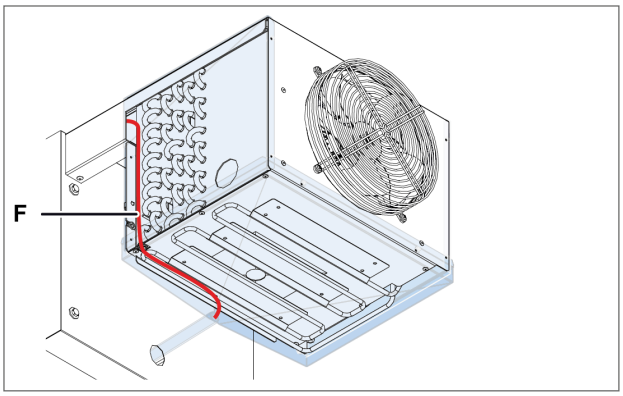
1. If the evaporator tray **[A]** must be replaced, remove it with the side panels **[B]**.



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

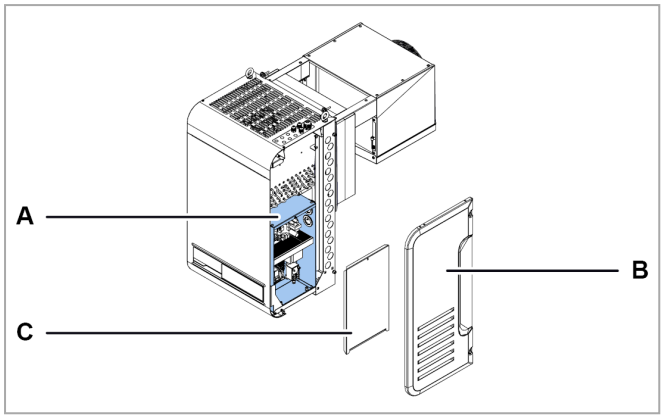
7.8.2 When to check or replace

Perform this procedure when problems are found on the electrical box components (see "Installation and operation troubleshooting" on page 33).

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 Combisteel assistance.

7.8.4 Access the electrical box



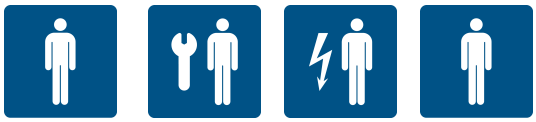
1. Access the electrical box components **[A]** by removing the right side panel **[B]** and the electrical box panel **[C]**.
2. Check or replace the component.

8. Diagnostics

This section includes the following topics:

8.1 Installation and operation troubleshooting

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 Combisteel 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.	• Check the connection to the mains. • Check that there is voltage on the electrical mains and that it conforms with the rated data. • Check the state of the circuit breakers on the machine.	
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.	• Check the Setpoint (**Set**) and the differential (**diF**). • Load the default setting of the unit.	
There is controller consent but the compressor is off (**OFF**).	• 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. • Check the wiring of the compressor power relay on the electrical box and its activation state. If the relay is NOT active, replace it.	
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 **Setpoint** temperature and the evaporator fans DO NOT work.	• If there is NO controller consent, check the evaporator fan parameters and, if necessary, load the default setting. • If there is controller consent, then, check the wiring of the fans and the relay on the circuit board and its activation state. • If the relay is NOT active, replace the circuit board.	 
The packaged unit does NOT reach the **Setpoint** temperature.	• If the evaporator is blocked with ice, then manually activate the defrosting several times (see the controller manual) until it is completely cleaned. • If the condenser is dirty, clean it. • Check that the unit is sized correctly for the required thermal load.	   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.	• If there is NO controller consent, check the evaporator fan parameters and, if necessary, load the default setting. • If there is controller consent, then, check the wiring of the fans and the relay on the circuit board together with its activation state. • If the relay is NOT active, replace the circuit board.	
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.	

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.	
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.	

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.	

9. Appendix

This section includes the following topics:

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 2).

9.2.2 Technical data applications in medium temperature

		BxWx251MA05Pxx	BxWx251MA10Pxx	BxWx251MA20Pxx	BxWx301MA30Pxx	BxWx301MA40Pxx	BxWx302MA50Pxx	BxWx352MA60Pxx	BxWx352MA70Pxx	BxWx352MA80Pxx
Size	-	1x250			1x300			1x350		
Cold room Temperature*	°C	from -5 to 15								
Dispersed Thermal Power **	W	936	1440	1940	2521	3132	3833	4653	5123	6112
Absorption ***	W	360	570	780	940	1200	1490	1680	1900	2440
	A	2.0	3.1	4.3	5.1	6.5	8.1 (230/1/50) 2.7 (400/3/50)	9.1 (230/1/50) 3.0 (400/3/50)	10.3 (230/1/50) 3.4 (400/3/50)	13.2 (230/1/50) 4.4 (400/3/50)
Maximum Current	A	3.9	5.9	6.0	8.5	10.6	11.2	13.1	15.8	20.3
							4.8	5.7	7.1	9.0
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_2	t CO_2	≤ 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								
Compressor Displacement	cm3	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					230/1/50 or 400/3/50			
Industrial plug 2P + E	A	16								32
Industrial plug 3P + N + E	A	-					16			
External protection circuit breaker (curve D)	A	10				16	16 (230/1/50) 10 (400/3/50)			20 (230/1/50) 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								
BMS cable length	m	2.5								

		BxWx251MA05Pxx	BxWx251MA10Pxx	BxWx251MA20Pxx	BxWx301MA30Pxx	BxWx301MA40Pxx	BxWx302MA50Pxx	BxWx352MA60Pxx	BxWx352MA70Pxx	BxWx352MA80Pxx
Sound pressure (10 m)****	dB(A)	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						8		
Machine dimensions (LxWxH)	mm	421x876x728			671x976x828			711x1255x828		
Total weight WT	kg	55	59	60	83	90	105	124	124	135
Total weight WT without packaging	kg	43	47	48	61	68	83	95	95	106
Total weight WS	kg	54	58	58	81	87	103	121	121	132
Total weight WS without packaging	kg	42	46	47	59	65	81	92	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

		BxWx251LA10Pxx	BxWx251LA20Pxx	BxWx301LA30Pxx	BxWx301LA40Pxx	BxWx302LA50Pxx	BxWx352LA60Pxx	BxWx352LA70Pxx
Size	-	1x250		1x300			1x350	
Cold room Temperature	°C	from -25 to -5						
Dispersed Thermal Power *	W	1213	1654	1865	2138	2733	3829	4373
Absorption **	W	650	910	940	1090	1295	1800	2110
	A	3.5	5	5.1	5.9	7.1 (230/1/50) 2.3 (400/3/50)	9.8 (230/1/50) 3.3 (400/3/50)	11.5 (230/1/50) 3.8 (400/3/50)
Maximum Current	A	5.9	8.3	8.7	10.5	12.4	16.5	19.8
						5.4	7.1	8.9
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_2	t CO_2	≤ 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						

		BxWx251LA10Pxx	BxWx251LA20Pxx	BxWx301LA30Pxx	BxWx301LA40Pxx	BxWx302LA50Pxx	BxWx352LA60Pxx	BxWx352LA70Pxx
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				230/1/50 or 400/3/50		
Industrial plug 2P + E	A	16					32	
Industrial plug 3P + N + E	A	-				16		
External protection circuit breaker (curve D)	A	10	16			16 (230/1/50) 10 (400/3/50)	20 (230/1/50) 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					8	
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

9.3.1 Documents attached to the manual

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

Conformity

Declaration of conformity

Conformity CE EAC

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.*

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