

**BI29 DUAL - BI36 - BI40 - BI41 DUAL -
BI53 - BI75 - BI92 DUAL - BI172 DUAL**

Built In

Installation and usage instructions

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1. SAFETY

1.1 Before putting the product into operation

Read the usage and assembly instructions carefully. They contain important information for the installation, use and maintenance of the product.

The manufacturer cannot be held liable for any damage resulting from improper and/or unreasonable use.

Keep all documentation for future use or for any subsequent owners.

- Store this manual in an accessible location protected from moisture and heat and protected from the direct rays of the sun.
- Use the manual in such a way as to avoid damaging it or any part of its content.
- Do not remove, alter or tear on any part of the manual.

Despite the care and thoroughness with which this manual has been prepared, the Manufacturer cannot guarantee that the information within covers every possible event associated with installation of the product. Contact our technicians immediately in the event of uncertainty. In the event of selling or transferring the product to another person, this manual and related documents should be delivered intact to the new user.

IMPORTANT



This manual refers to the standard version of the product. Non-standard machines may have minor differences not described in this manual.
Contact the Manufacturer with any concerns or questions.

1.2 Technical safety

This product contains a small amount of refrigerant R134a, a gas classified as non-hazardous and non-flammable, but if mixed with pressurised air and exposed to certain temperatures (above 50° C), it may ignite.

When transporting and installing the product, take care not to damage any part of the refrigerant circuit.

If the refrigerant should forcefully exit from the circuit:

- Keep open flames or potential sources of fire away from the product
- Ventilate the room where the product is located well for a few minutes
- Switch off the product and pull out the power plug
- Notify the authorised Customer Service Department

DANGER



Contact a doctor immediately in case of inhalation, skin or eye contact.

Never switch on the product if it shows signs of damage. Contact the Manufacturer with any concerns or questions.

If this product's mains connection cable is damaged, it must be replaced by the manufacturer, customer service or a similarly qualified person authorised by the Manufacturer.

Installations and repairs carried out by unqualified persons can create considerable danger to the user.

Repairs may only be carried out by the manufacturer, customer service or a similarly qualified person authorised by the Manufacturer.

Only original manufacturer spare parts may be used. The manufacturer can guarantee that the safety requirements are met on when these parts are used.

1.3 Intended use

This product is designed to preserve food at low temperatures and is intended exclusively for use in recreational vehicles and boats. The product is not suitable for any other use. Any use that does not comply with the indications in this manual is to be considered improper and dangerous.

WARNING



The Manufacturer declines all responsibility for accidents to persons or property deriving from the non-observance of the provisions and instructions listed in this manual and from the non-observance of the safety and accident prevention regulations in force in the various countries.

This product must not be handled and/or used by children under 8 years of age and/or persons with reduced physical, sensory or cognitive abilities unless they are supervised and/or adequately instructed with regard to the methods of use by a person responsible for their safety and aware of all the possible risks involved.

1.4 Contraindications of use

WARNING



The refrigerator is only suitable for the preservation and/or storage of food items. The food items must be stored in their original packing or else in suitable containers. Do not consume expired food products as such behaviour could result in food poisoning.

DANGER



The purpose of the product when used as a freezer (only for models pre-set for this function) is solely to keep food products that are already completely frozen in the same frozen state.

The refrigerator will not freeze non-frozen or partially frozen food products. If a non-frozen or partially frozen food product is stored in the freezer, this is considered improper use and can cause possible unintended thawing of food which may lead to problems related to safety, illness or injury if swallowed.

The preservation of non-frozen or partially frozen food in the freezer can also affect the quality of other frozen food products stored in the freezer.

Exposure to temperatures above the temperature of the climatic class range for which the product was built, power supply interruptions and/or frequent opening of the freezer can influence the effectiveness of the refrigerator and the quality of the contents of the freezer.

The user should always check food quality before ingesting.

WARNING



If medicines are to be stored in the product, check that the product has a cooling capacity that meets the requirements of the respective medicines.

WARNING



The packaging elements (plastic bags, expanded polystyrene, etc.) must not be left within the reach of children or incapacitated persons: they are potential sources of danger.

DANGER



This product must not be handled and/or used by children under 8 years of age and/or persons with reduced physical, sensory or cognitive abilities unless they are supervised and/or adequately instructed with regard to the methods of use by a person responsible for their safety and aware of all the possible risks involved. Keep the product and its power cable out of reach of children under 8 years of age and prevent them from playing with the product (avoid the risk of entrapment and suffocation inside the product). Cleaning and maintenance are meant to be performed by the user and must not be performed by unsupervised children.

DANGER



Keep children under 8 years of age away from the product or under constant supervision. Do not allow children to play with the product. Children may become entangled and suffocate. Do not allow children to clean or perform maintenance on the product without supervision.

WARNING



Do not use mechanical, electrical or chemical methods to accelerate defrosting, which must occur automatically; doing so creates a risk that the refrigerant circuit can be perforated. Do not touch the internal cooling parts: doing so creates a danger of burn or injury.

WARNING



Do not store inside the product or in the vicinity of its electrical parts: flammable substance-based spray cans, explosive materials, electrical equipment, live animals. Spray cans containing flammable substances may have leakage of these gases which, in contact with electrical parts, can ignite or cause explosions. Keep any drinks with high alcohol content tightly closed and upright. Avoid flames or sparks inside the product. Do not use electrical equipment inside the product.

1.5 List of dangers

DANGER



REFRIGERANT GAS

When transporting and installing the machine, take care not to damage any part of the refrigerant circuit. Make sure that the circuit has not been damaged during transport and, if it has, please promptly contact qualified personnel certified to handle fluorinated gases.

Always keep any sources of ignition at a safe distance during use, maintenance and disposal.

DANGER



REFRIGERANT GAS

This product contains refrigerant gas R134a within a hermetically sealed system whose operation depends on the presence of said gas.

DANGER



RISK OF INJURY FROM LEAKING REFRIGERANT

Never open the refrigerant circuit except for the normal connection/disconnection of couplings (where present). Never release the refrigerant R134a contained in the product into the environment.

Operations on the refrigeration circuit must be carried out by specialised technicians who are familiar with the basic principles of refrigeration, the refrigeration system, refrigerants and the potential dangers that high pressure units can cause.

Appropriate PPE such as gloves and goggles must worn during these operations. Contact with refrigerant can cause serious damage to eyesight and contact with the skin can cause freezer burns.

In addition, respiratory protection must also be provided if the environment in which the product is located is not sufficiently ventilated.

DANGER

**ELECTRICAL MAINS**

Always disconnect the power supply from the product before carrying out any work on it in order to avoid damage and health hazards.

DANGER

**AUTHORISED TECHNICAL PERSONNEL**

Only technical personnel specialised in electrical, hydraulic and refrigeration fields can work on the product. All wiring and hydraulic components must comply with national and local laws (use only original spare parts certified by the Manufacturer when replacing components).

DANGER



For extended periods of disuse or when defrosting, remove the unit's light bulb or disconnect all of its power supplies. Leave the product door slightly open to air out the inside and prevent the formation of mould.

DANGER



Disconnect the product from the mains power supply immediately in the event of any malfunction. Never touch any damaged or non-insulated electrical cables while the electrical power supply is enabled. This observation is particularly true when the product is connected to 115V or 230V mains voltage. The power cable must be replaced if damaged. Contact qualified personnel or your nearest Service Centre.

DANGER



Do not use plugs and switches if you have wet hands or feet.

1.6 Residual risks

The product is safe in its operating conditions. There are, however, residual risks, listed in the list of dangers which are contained when the product is used correctly, following the instructions in the use and maintenance manual.

2. General information

The use and maintenance manual is an integral and essential part of the product and must be delivered to the user. It is important that it be well kept and carefully consulted as it contains specifications on the operation, maintenance and safety and product and the people and/or property that come into contact with it.

Please contact the Manufacturer with any concerns or questions about the indications provided in this manual.

The Manufacturer is excluded from any contractual and extra-contractual liability for damage caused by errors in the use and installation of the product, or in any case by failure to comply with the instructions given by the Manufacturer.

IMPORTANT



The Manufacturer reserves the right to modify the product and the related technical documentation without incurring any obligation towards third parties and does not accept responsibility for any errors or inaccuracies in the contents of this manual. This use and maintenance manual describes the characteristics of the standard product as of the date on which this publication was licensed for printing.

2.1 Manufacturer identification

Indel Webasto Marine Srl

Via Montefeltro, 118/c - Secchiano
47863 - Novafeltria (RN) - ITALY
www.indelwebastomarine.com

The Manufacturer is at your disposal for technical assistance or for the request of spare parts.

The use of original spare parts is recommended when replacing product parts. The Manufacturer declines all responsibility for any deterioration in product performance or for damage caused to the product due to the use of non-original parts.

2.2 Product identification

This manual refers to the following machines:

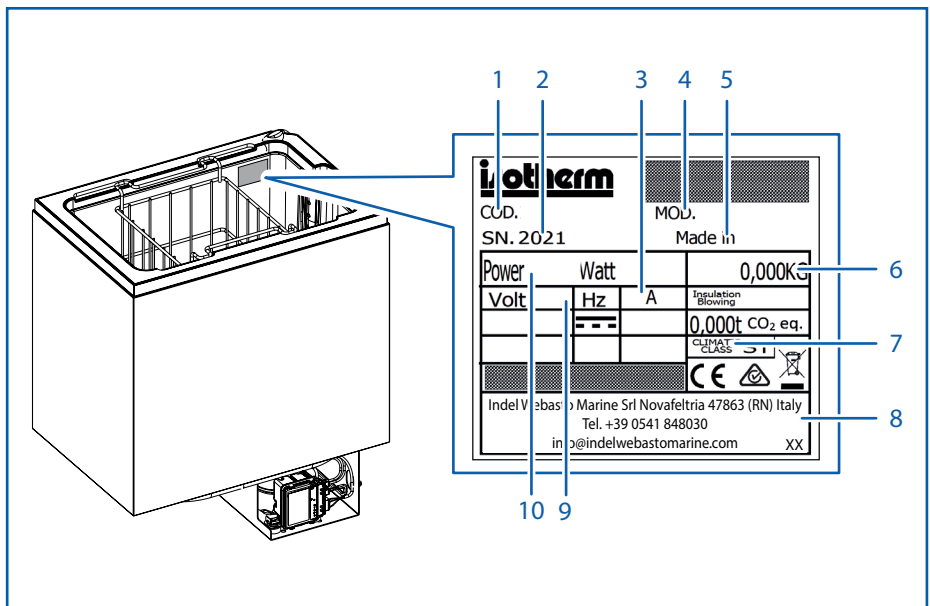
BI29 DUAL - BI36 - BI40 - BI41 DUAL - BI53 - BI75 - BI92 DUAL - BI172 DUAL

Make sure that the product delivered to you has the identification plate located inside the compartment, containing the following information:

- 1) Code
- 2) Serial number
- 3) Rated current
- 4) Model
- 5) Country of production
- 6) Type and quantity of gas
- 7) Climate class
- 8) Manufacturer identification
- 9) Working voltage
- 10) Rated power

It contains the model, serial number and all the technical data of the product necessary to request spare parts or to report technical problems to the service centre.

The products meet the requirements of current European directives and bear the CE marking.



2.3 Consulting the manual

Warnings or instructions considered critical or dangerous are highlighted with the following symbols for a better understanding of the information provided in this manual:

DANGER



Indicates information or a message which may seriously endanger the health and safety of operators if not strictly observed.

WARNING



Indicates information or a precaution that must be observed to avoid operations that may damage the product.

IMPORTANT



Indicates important information that must be observed to avoid operations that may damage the product, or any part of the text that you want to highlight.

OBLIGATION TO READ INSTRUCTIONS



The presence of this symbol mandates reading of instructions before putting the product into operation.

OBLIGATION TO DISCONNECT



The presence of this symbol mandates immediate disconnection of the product from the mains in case of failures.

OBLIGATION TO WEAR GLOVES



The presence of this symbol mandates each operator wear suitable protective gloves.

OBLIGATION TO WEAR SHOES



The presence of this symbol mandates each operator wear shoes designed to decrease the risk of injury.

OBLIGATION TO WEAR GOGGLES



The presence of this symbol requires each operator to wear eye protection equipment, such as safety goggles with side protection.

2.4 Operator qualification

In order to ensure that all operations carried out on the product are performed in safe conditions, the operators in charge must have the qualification and requirements to carry out the relative operations.

The operators are classified as follows:

USER



Unqualified operator, or rather without specific skills, able to carry out only simple tasks, i.e. use of the product through the use of the controls located on it and intervention for simple cleaning situations, following the instructions of this manual during use of the product.

Cannot perform operations intended for an installer.

INSTALLER



Operator qualified to carry out complex operations such as installation or maintenance. This is an operator who has been adequately trained through specific activities.

IMPORTANT



The pictogram at the beginning of each paragraph indicates the person authorised to carry out the operations described.

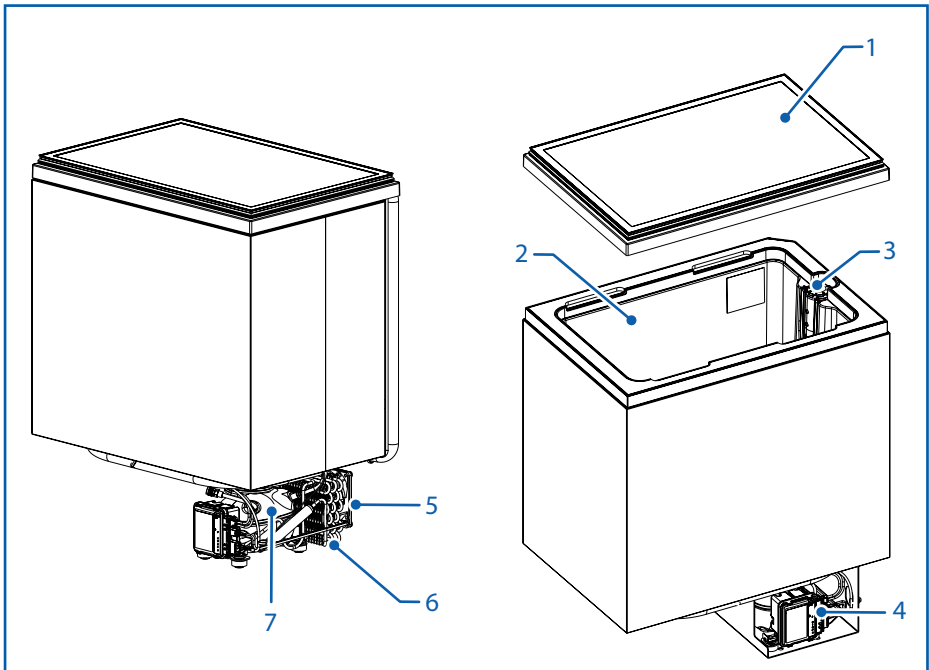
3. Product description

3.1 Main components

IMPORTANT



The following image shows a generic version of the product with the main parts indicated. Please refer to paragraph 3.3.4 to page 21 for all the various configurations and accessories for the available models.



- 1) Lid
- 2) Internal compartment
- 3) Thermostat
- 4) Electronic unit
- 5) Fan
- 6) Condenser
- 7) Compressor

3.2 Technical data

Model	Total capacity (L)	Compressor	Climate class
BI29 DUAL	29	BD1.4F-AM	T
BI29 DUAL CUSTOM	29	BD1.4F-AM	T
BI36	36	BD35F	ST
BI40	40	BD35F	ST
BI41 DUAL	41	BD1.4F-AM	ST
BI53	53	BD50F	ST
BI75	75	BD35F	ST
BI92 DUAL	92	BD50F	ST
BI172 DUAL	172	BD50F	ST

The refrigerant gas used for all product models is R134a.

3.2.1 Energy consumption

The operating voltage can be 12 or 24 VDC, while for some models the operating voltage is only 115V / 60Hz or 230V / 50Hz (see table).

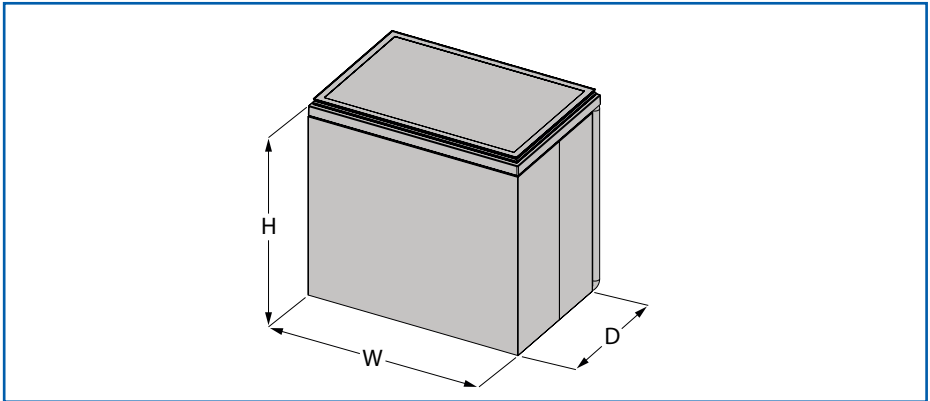
Model	Instantaneous consumption 12/24Vdc (A)	Instantaneous consumption 12/24Vdc (W)	Average consumption at 25°C (Wh/24h)*
BI29 DUAL	3.5/1.7	42	175
BI29 DUAL CUSTOM	3.5/1.7	42	175
BI36	6.3/3.0	72	260
BI40	6.3/3.0	72	270
BI41 DUAL	3.5/1.7	42	222
BI53	7.0/3.5	85	260
BI75	6.3/3.0	72	340
BI92 DUAL	7.0/3.5	85	360
BI172 DUAL	7.0/3.5	85	603 (357 for fridge version only)

IMPORTANT (*)



Average consumption is measured with internal temperature +5°C and outside temperature +25°C. Average consumption is influenced considerably by the way the product is used and the type of ventilation.

3.3 Dimensions



Model	Width (mm) [W]	Height (mm) [H]*	Depth (mm) [D]	Cut-Out (mm) W:H
BI29 DUAL	342	326 + 40	655	344:505
BI29 DUAL CUSTOM	342	326 + 15	655	344:505
BI36	438	676 + 35	240	440:242
BI40	406	402 + 25	564	408:408
BI41 DUAL	500	612 + 15	342	502:344
BI53	645	630	425	647:427
BI75	645	630	425	647:427
BI92 DUAL	801	615	480	803:482
BI172 DUAL	980	840	493	982:495

IMPORTANT (*)



The additional value corresponds to the size of the product door.

3.3.1 Functionality

Models	Fridge	Freezer	Dual (Fridge or Freezer)	Fridge + Freezer
BI29 DUAL			•	
BI29 DUAL CUSTOM			•	
BI36	•			
BI40	•			
BI41 DUAL			•	
BI53		•		
BI75	•			
BI92 DUAL			•	
BI172 DUAL*				•

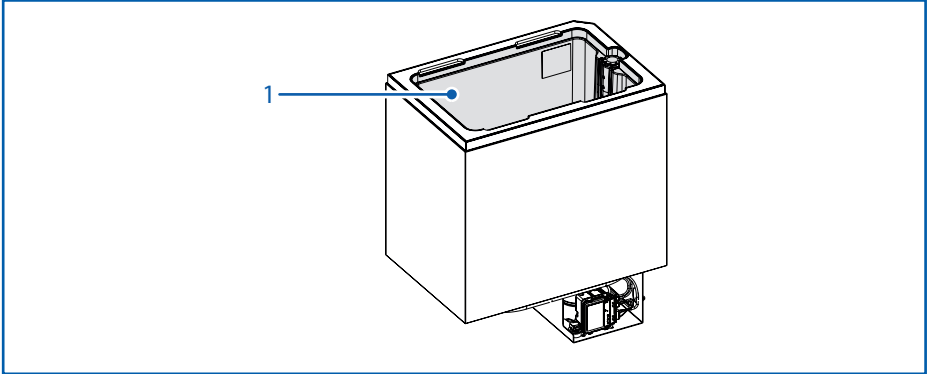
IMPORTANT (*)



The BI172 model allows a dual mode of use. In its standard configuration it has a separate fridge and freezer compartment. When the divider that divides the two compartments is removed, the entire volume of the product can be used as a fridge compartment (see 5.5 to page 45).

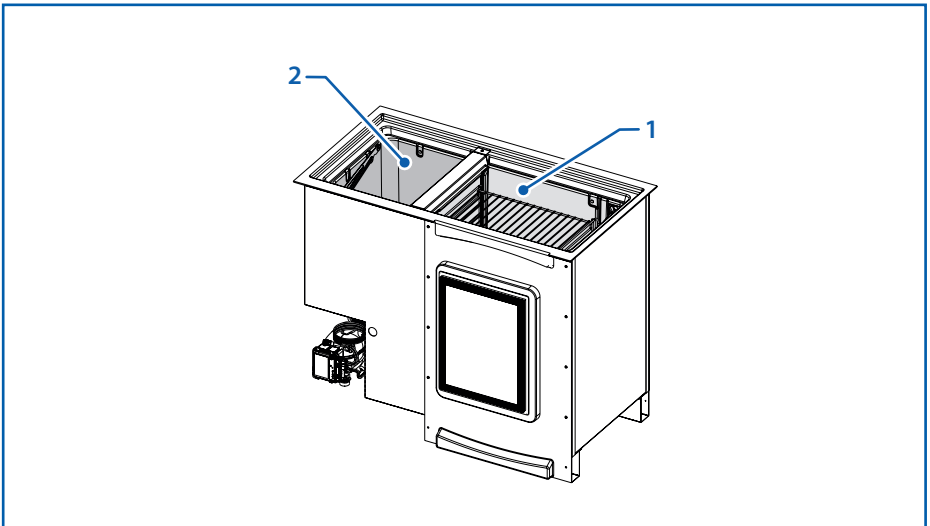
“DUAL” models

These models have only one compartment (1) and are designed to be used as a refrigerator or freezer, as needed.



Fridge + Freezer models

These models have two compartments: refrigerator (1) and freezer (2).



3.3.2 Control modes

IMPORTANT

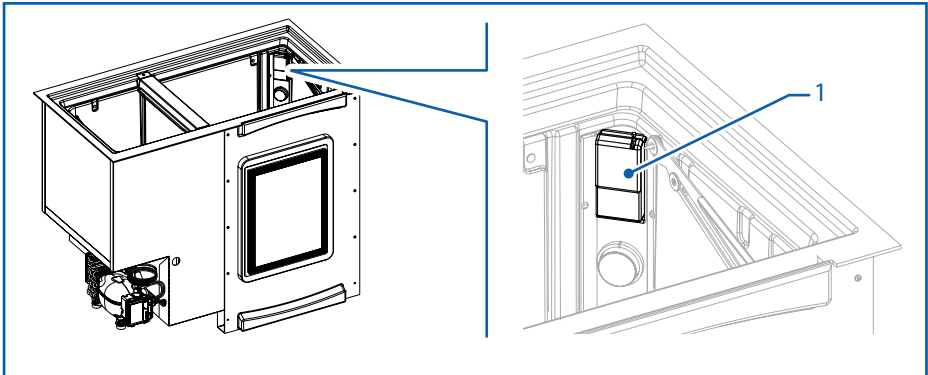


To find out how the mechanical control works, please refer to paragraph 5.3 to page 41.

3.3.3 Lighting modes

Models with LED bulb

These models feature an LED bulb **(1)** located near the thermostat. The bulb lights up every time the drawer is opened and switches off when the drawer is closed. Lighting is deactivated when the product is switched off.



3.3.4 Available accessories

The accessories available for the various products are as follows, though they may vary slightly in shape and size between models:

Model	ACCESSORIES	
	1	2
BI29 DUAL	•	
BI29 DUAL CUSTOM	•	
BI36	•	
BI40	•	
BI41 DUAL	•	
BI53	•	
BI75	•	
BI92 DUAL	•	
BI172 DUAL		•

- 1) Basket
- 2) Dividing shelves

IMPORTANT



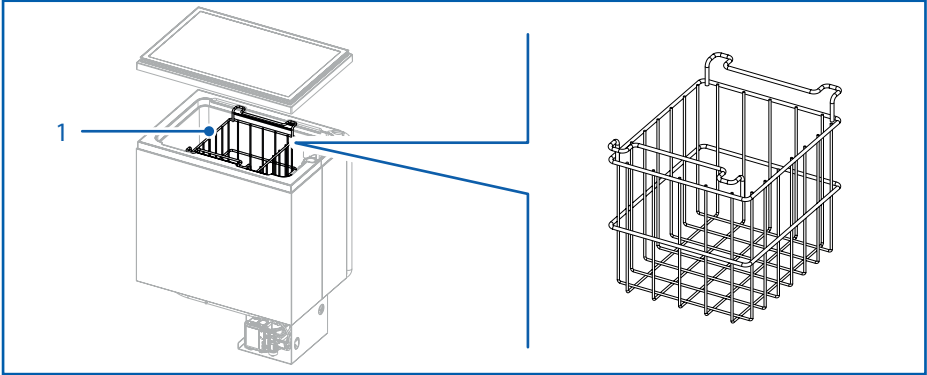
Please refer to paragraph 5.4 to page 43 for the positioning of detachable accessories.

IMPORTANT

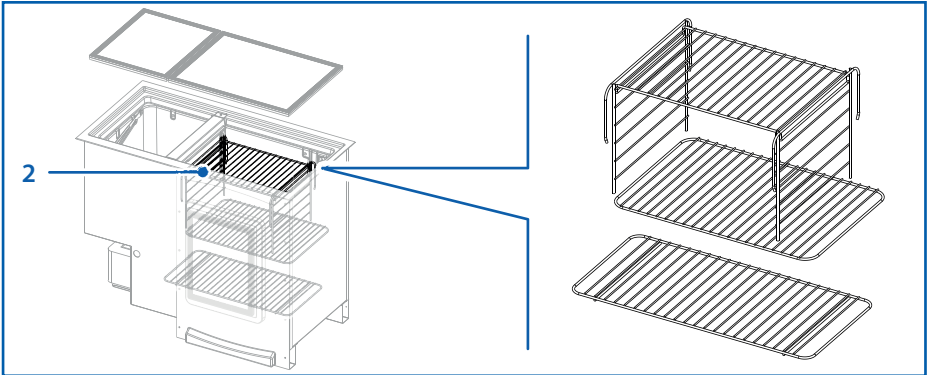


The following pages illustrate the available accessories; shapes, sizes and positions may vary depending on the product model you have.

1) Basket



2) Dividing shelves



4. Installation

WARNING



In order to guarantee the unit's safe functionality, follow the indications included with in these instructions when installing and connecting the product.

WARNING



Any changes made to the product without the knowledge of the manufacturer will be the sole responsibility of those carrying out said changes. Changes made without the permission of the Manufacturer will void all warranties and may void the declaration of conformity to applicable directives

WARNING



Do not damage the refrigerant circuit tubes, as leaking refrigerant can cause serious damage to eyesight and contact with the skin can cause freezer burns. In the event of damage to the product itself, notify the Manufacturer immediately before performing the connections.

WARNING



If the power cable is damaged, it must be replaced by the Manufacturer, an Authorized Service Centre or a qualified technician.
Install the product in a dry place that's sheltered against water spray. The unit's electrical components must NOT be exposed to rainfall and/or sprays of water.

WARNING



Install the product away from gas or LPG cylinders.

WARNING



The product must be installed in an area accessible for any maintenance.
The housing space of live parts and of the condenser/compressor must only be opened voluntarily and not directly accessible.

WARNING



The compressor/condenser installation area must be made with a material resistant to the needle-flame test required by standard IEC 60335 or else be more than 5 cm from electrical and/or electronic components.

WARNING



The product must be installed in power supply circuits whose sources are car/ caravan/RV batteries or boat batteries.

WARNING



If there is a battery charger, it must be connected to the battery and never directly to the product.

WARNING



Never short-circuit the poles of the power source

WARNING



The product must be protected against indirect contact in accordance with the "Heavy Current Regulations".

WARNING



Never touch any damaged or non-insulated electrical cables while the electrical power supply is enabled. This observation is particularly true when the product is connected to 115 V or 230 V mains voltage.

4.1 Packaging checks and removal



The operations indicated in this paragraph must be performed by a qualified installer. Always use PPE (Personal Protective Equipment) to avoid cutting risks.

After unpacking, check all parts for transport damage.

In case of complaints, please contact the supplier from whom the product was purchased or our customer service department.

IMPORTANT



The product and accessories are wrapped with buffer materials or fixed with some adhesive tape to avoid movement of the moving parts during transport: remove them all before installation. Always transport the product in a vertical position.

IMPORTANT



The packaging protects the product from transport damage. All materials used are environmentally friendly and recyclable. Please do your part: dispose of packaging in accordance with environmental regulations. Please ask your specialised dealer or your local authority for information on current disposal routes.

4.2 Environmental conditions

The product must be positioned away from rain, sprays of water and in an environment with a temperature corresponding to the climate class (indicated on the data plate inside the product), otherwise the factory warranty will be void and faults may occur.

The product is not suitable for outdoor use.

The climate class is indicated on the data plate:

- SN or extended temperate class (ambient temperature from 10°C to 32°C)
- N or temperate class (ambient temperature from 16°C to 32°C)
- ST or subtropical class (ambient temperature from 16°C to 38°C)
- T or tropical class (ambient temperature from 16°C to 43°C)

4.3 Ventilation



The operations indicated in this paragraph must be performed by a qualified installer. Always use PPE (Personal Protective Equipment) to avoid cutting risks.

It is extremely important for the compressor/condenser located under the product to be well ventilated so that the fresh air can enter at the bottom and pass behind the product, with the hot air being allowed to escape from the top or sides (see figure on the next page).

This area must be accessible for any maintenance or replacement of individual parts.

On all models, the compressor/condenser can be made remote, i.e. it can be moved away from the product and connected to it via a connection system.

The compressor/condenser installation area must be made with a material resistant to the needle-flame test required by standard IEC 60335 or else be more than 5 cm from electrical and/or electronic components.

WARNING



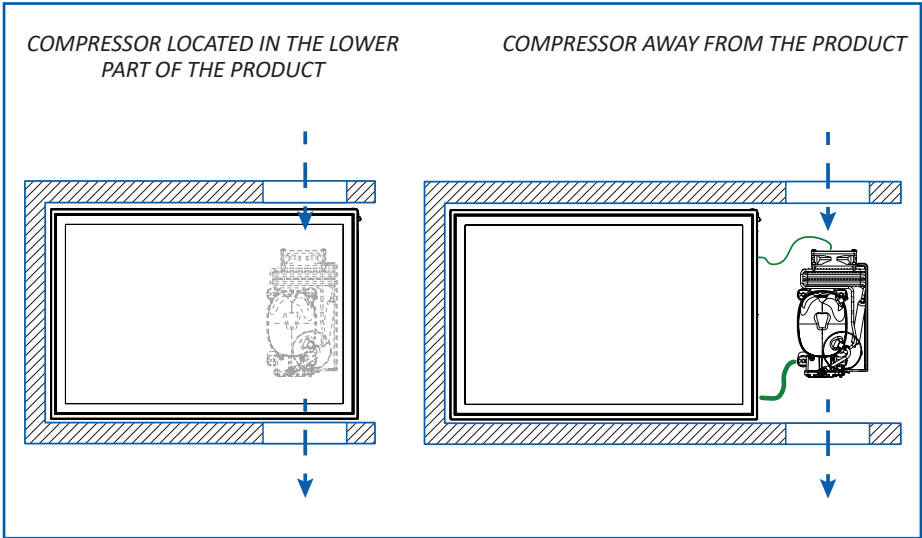
Do not obstruct the ventilation windows.

WARNING



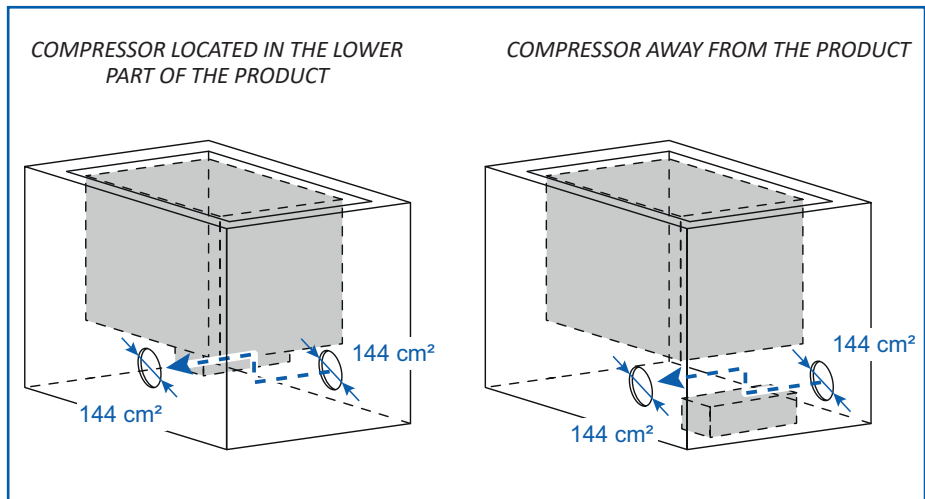
If the compressor is remote controlled, it is necessary to maintain the same air circulation that is required for the non-remote compressor.

The illustration shows an example of how the product housing must be set up to allow air recirculation for proper compressor operation.



After identifying the position of the compressor on the product, make the ventilation windows to allow proper air circulation in compliance with the following requirements (see also the indications in the figure):

- There must be at least two ventilation windows to ensure the correct intake of fresh air and exit of warm air.
- The ventilation windows must be positioned in such a way as to ensure the correct cooling flow, bearing in mind that the hot air outlet window must be positioned higher than the fresh air inlet window.
- The minimum surface area of each ventilation window must be 144 cm^2 .



WARNING



Consider adding additional ventilation windows if the product is installed near other heat-generating equipment. This will prevent this heat from affecting the cooling flow required for the product and thus prevent a decrease in product performance.

4.4 Product recessing



The operations indicated in this paragraph must be performed by a qualified installer. Always use PPE (Personal Protective Equipment) to avoid cutting risks.

The products are unfinished without a finish externally and in some cases perforated to facilitate recessing and mounting inside the furniture with the possibility of installing special sliding rails. For some models, there are holes near the lids that have been prepared in case you want to add a hinge opening system or, for particularly heavy lids, a system formed by compass arms capable of supporting the load.

IMPORTANT



Product recessing and preparation of the lid opening systems are the responsibility of the customer and must be carried out by a qualified Installer.

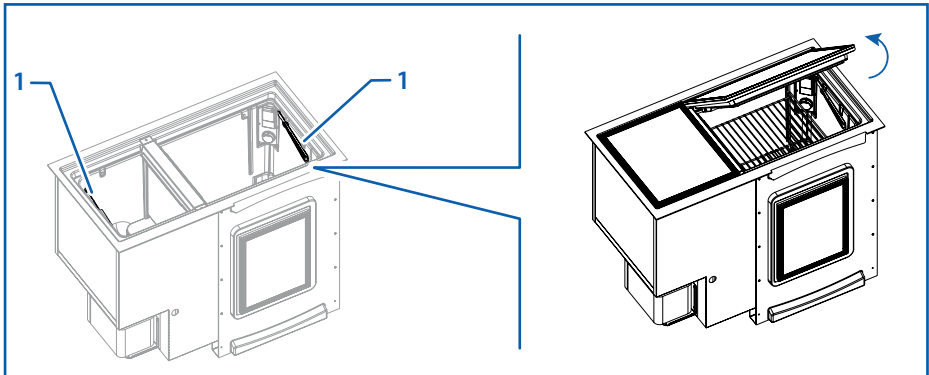
IMPORTANT



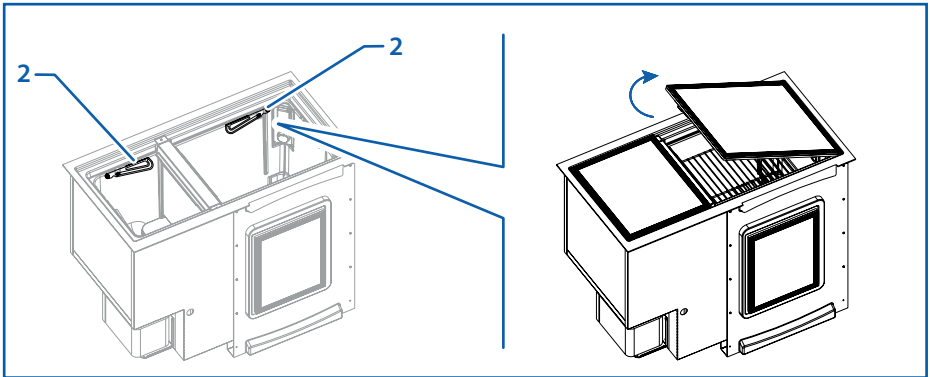
Make sure that correct contact between the lid, gasket and trunk is ensured.

4.4.1 Lid opening for model BI172

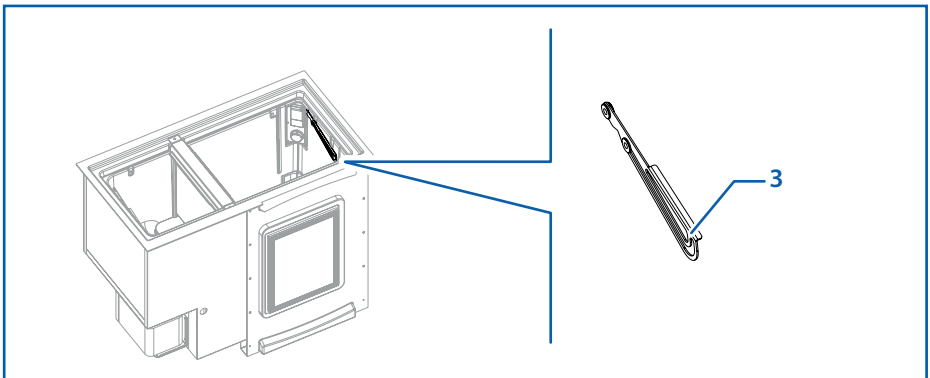
When the supplied brackets are placed in the housing on both short sides (**1**) of the product, two lids can be opened as shown in the figure.



- When the brackets are moved into the housings on the long sides (2), the two upper doors can be opened as shown in the figure.



- When opening the upper doors, it is important to keep hold of the doors until the support brackets lock into the bushing rail in the curved area (3) to prevent the doors from closing accidentally.



4.4.2 Water drain for models pre-set for this function



The operations indicated in this paragraph can be performed by a user. Always use PPE (Personal Protective Equipment) to avoid cutting risks.

For models pre-set for this function, it is possible to drill holes in the bottom of the product compartment to create a drainage route for any water that may deposit on it.

WARNING

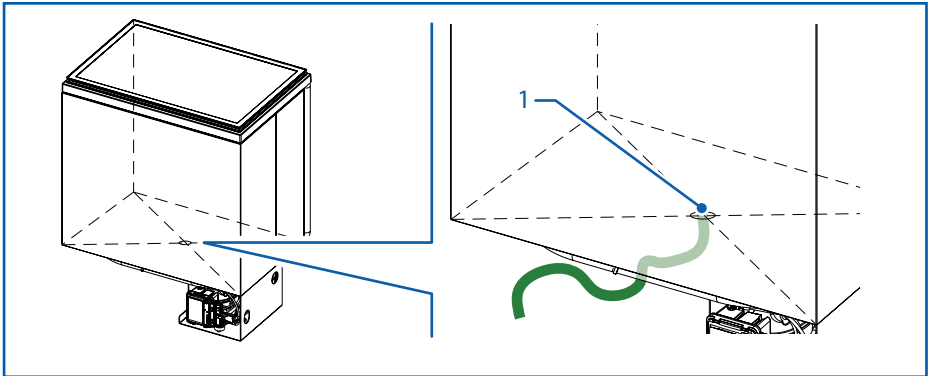


The point at which the bottom of the product can be drilled is indicated by a partial hole.
Do not drill in other places, as the product may become irreparably damaged.

IMPORTANT



It is advisable to install a butterfly valve on the draining tube to ensure insulation between the refrigerated compartment and the outside environment.

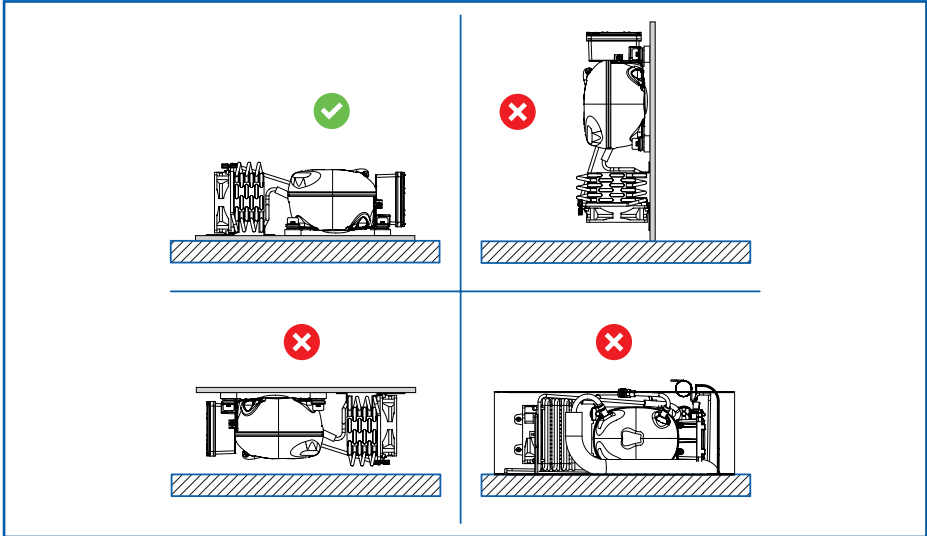


Model	Draining tube length (mm)	Draining tube/hole diameter (mm)
BI29 DUAL	500	11/8
BI29 DUAL CUSTOM	500	11/8
BI36		no hole
BI40		no hole
BI41 DUAL	500	14/10
BI53	500	11/8
BI75	500	11/8
BI92 DUAL	500	12/7.5
BI172 DUAL		no hole

4.5 Positioning

The product is designed exclusively for built-in installation. The product must always be in a horizontal position.

In particular, the compressor base must be positioned horizontally (see figure).



WARNING



Remember that the compressor can operate up to a maximum inclination of 30°; a greater inclination may damage the compressor.

IMPORTANT



If the installation compartment is not deep enough to accommodate the compressor, in some models it can be moved to one of the other sides of the product. Contact a qualified installer to perform this procedure.

WARNING



The compartment in which the product is placed and installed must guarantee a lower support surface of sufficient capacity to support the weight of the product when fully loaded.

4.5.1 Compressor remote control



The operations indicated in this paragraph must be performed by a qualified installer. Always use PPE (Personal Protective Equipment) to avoid cutting risks.

Some models offer the possibility of remote control of the compressor.

To disassemble the compressor unit, remove the fixing screws of the bracket supporting it and position it in the housing provided.

WARNING



For remote control compressors, it is necessary to maintain the same air circulation as that required for the compressor installed on the machine (see paragraph 4.3 to page 25).

The installation position of the compressor is at the discretion of the person carrying out the installation. In any case, take into consideration all the previous indications on the correct positioning and ventilation of the compressor unit.

IMPORTANT



When making the compressor remote controlled, consider the maximum distances given in the tables below.

Model	Maximum distance for compressor remote control (m)
BI29 DUAL	0.9
BI29 DUAL CUSTOM	0.9
BI36	1.3
BI40	1.2
BI41 DUAL	0.9
BI53	1.5
BI75	1.5
BI92 DUAL	1.5
BI172 DUAL	1.8

4.5.2 Compressor/product connection



The operations indicated in this paragraph must be performed by a qualified installer. Always use PPE (Personal Protective Equipment) to avoid cutting risks and risks deriving from refrigerant.

Follow the operations below to connect:

- Connect the female compressor coupling with the male evaporator coupling, turning only the nut on the female coupling.
- Connect the second pair of couplings by turning only the nut on the female coupling.

WARNING

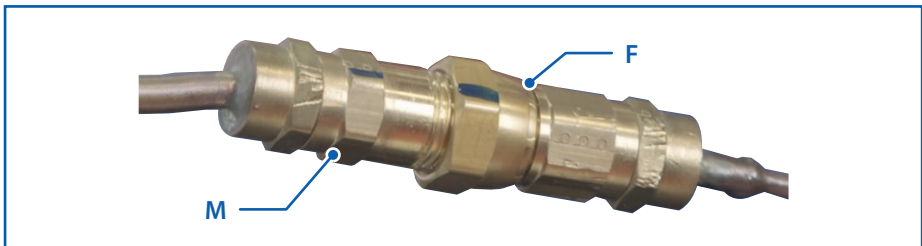


Do not dispose of the protective covers!

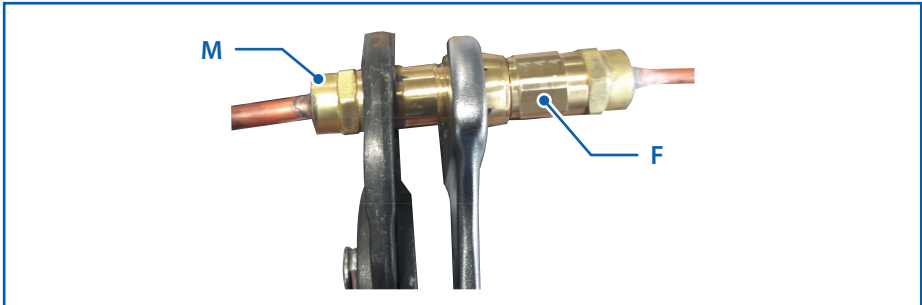
If you need to reposition the compressor unit, the couplings can be disconnected without releasing refrigerant gas. In this case, immediately screw on protective covers to prevent dust from depositing on joints.

Proceed as follows to connect and tighten the couplings:

- Remove the lids of the couplings to be connected.
- Check that the gasket seal in the male coupling is properly lubricated.
- Move the female coupling closer to the male coupling and insert them by hand to ensure that the threads are properly matched.
- Make sure that the male coupling is stationary and hand-tighten the rotating nut of the female coupling as far as possible.
- Use a felt-tip pen to mark a line parallel to the couplings as shown in the figure.

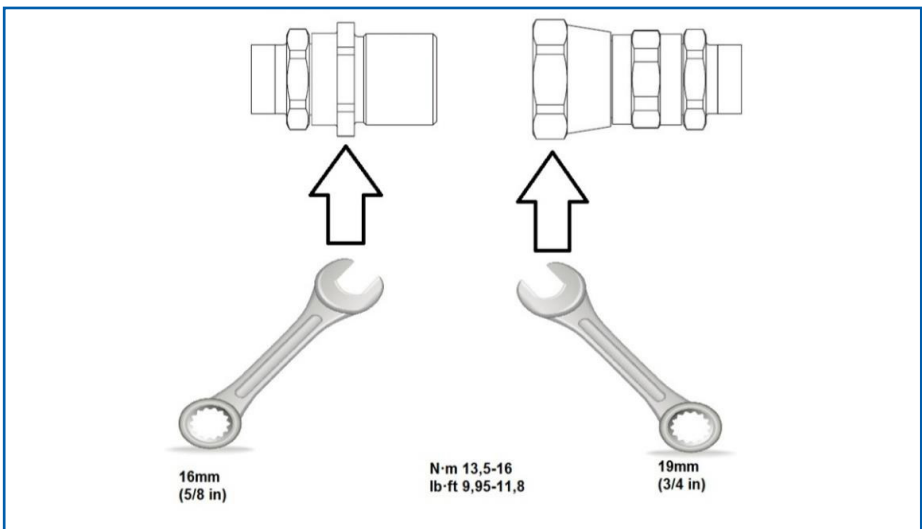


- Use two suitably sized spanners (one on the hexagonal body of the male coupling (**M**) and the other on the nut of the female coupling (**F**) as shown in the figure) and tighten the couplings 1/8 turn further. Misalignment of the line marked will act to indicate the degree of tightening. The final turn has the purpose of ensuring that the metal edge enters into the brass housing of the two joint components, forming a leak-proof connection.



- Observe the tightening torque values shown in the figures below.
- Observe these operations for each pair of couplings.

Coupling tightening torque



4.6 Electrical connection



The operations indicated in this paragraph must be performed by a qualified installer. Always use PPE (Personal Protective Equipment) to avoid cutting risks.

WARNING



In case of power connection from AC mains, to avoid the risk of serious personal injury, ensure that it is equipped with cut-off devices (switches) which permit total disconnection of the product current and protective devices which automatically intervene in the event of malfunction.

In order connect the unit to the vehicle's electrical system, proceed as follows:

- Before turning on the product, check to make sure that the voltage of the electrical system and/or battery complies with that which is indicated on the unit's data plate.
- Connect the product directly to the battery or to the relative main switch and make sure that the system is equipped with an electric device that's capable of protecting the circuit against possible overcurrents.

IMPORTANT



If the power supply voltage is different from 12/24Vdc, install a ΔI 0.03A differential circuit breaker. Avoid connecting the unit via the vehicle's control panel as this could result in voltage drops.

- Insert a fuse upstream from the product (see the table below). Connect the red wire to the electrical system's positive terminal, and connect the black wire the negative terminal. Use a pressed lug terminal that is suitable for the cable's size.
- A separate switch that simultaneously disconnects the power cables must be installed upstream from the product.

IMPORTANT



When connecting the BI92 model, provide an upstream switch (not supplied) in a position accessible to the user, which is necessary in order to switch off the product.

Model	12Vdc	24Vdc
BI29 DUAL - BI36 - BI41 DUAL	15	15
BI40 - BI53 - BI75 - BI92 DUAL - BI172 DUAL	15	7.5

WARNING



If there is a battery charger, it must be connected to the battery and never directly to the product.

IMPORTANT



All wiring diagrams can be found in paragraph 10 to page 62.

4.6.1 Size of the electrical cables

Always use cables of a suitable cross-section. The minimum cross-sections are listed in the table below:

Cross-section mm ²	AWG cross-section	Max cable length 12V m/ft	Max cable length 24V m/ft
2.5	13	2.5/8	5/16
4	11	4/13	8/26
6	9	6/19	12/39
10	7	10/33	20/66

4.6.2 Low voltage protection

In order to prevent excessive battery depletion, a protection device shuts off the compressor in case of insufficient voltage and turns it back on when the voltage in the system increases after the batteries have been charged.

System Voltage	Shut-down Voltage	Minimum Operating Voltage
12V	9.6 (10.4) V	10.9 (11.7) V
24V	21.3 (22.8) V	22.7 (24.2) V

If the bridge is removed between C and P, the values indicated in the parentheses are valid.

WARNING



Before switching on the product, always make sure that the batteries are in optimal condition.

5. Usage instructions

WARNING



If you notice any irregular operation, first of all consult the "TROUBLESHOOTING" section later in this manual. It will help you solve problems that are not caused by faults and can be resolved easily.

In any other case, do not try to repair the product yourself but contact qualified personnel or your dealer to avoid possible damage or danger, including to yourself. Any unauthorised tampering will void the product warranty.

WARNING



Check for any visible damage on the refrigerator's mechanical and electrical components prior to use.

Before using the product:

- Switch off the product if it is on.
- Make sure that all packaging materials have been removed.
- Thoroughly clean the inside of the product and its accessories with warm water and neutral soap, then dry completely with a cloth.
- Clean the outside of the product with a soft damp cloth.
- Wait for the product to dry completely.
- Connect the product to the power supply as indicated in the relative paragraph.

5.1 Switching on



The operations indicated in this paragraph can be performed by a user.

To switch on the product:

- Use the knob on the mechanical thermostat to start the product (see paragraph 5.3 to page 41).

5.2 Usage recommendations

- Turn the product on for about 6 hours prior to inserting the food items.
- Open the product less frequently for lower power consumption.
- Do not obstruct the product ventilation system.
- Check the batteries and their level of charge regularly.
- Keep the inside of the product clean and dry. Remove the condensation water at the bottom of the product if no water drain has been provided via the tube supplied.
- To keep the aesthetic surfaces in good conditions and intact, make that they are always clean and dry.

5.3 Setting the temperature via mechanical thermostat

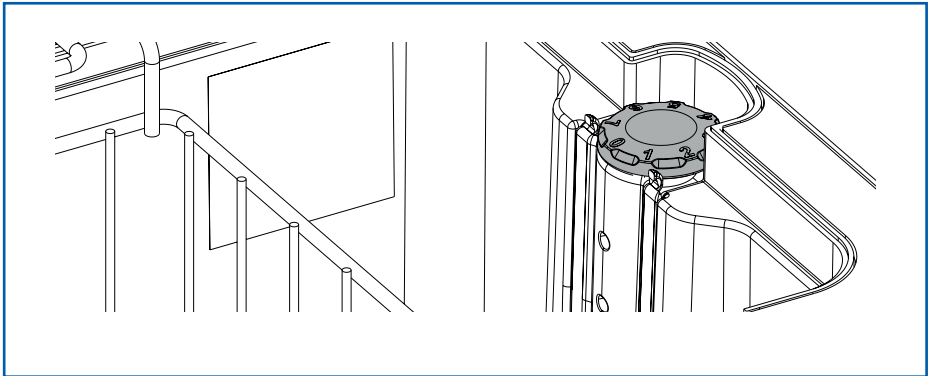


The operations indicated in this paragraph can be performed by a user.

To adjust the thermostat, turn the knob to match the desired cooling intensity with the reference on the thermostat.

Cooling intensity varies from **1** to **7**, where **1** corresponds to the minimum and **7** to the maximum.

To switch off the product, turn the knob until **0** matches the reference on the thermostat.



NOTE



Some product models have a thermostat on which temperature values are displayed instead of cooling intensity.

NOTE



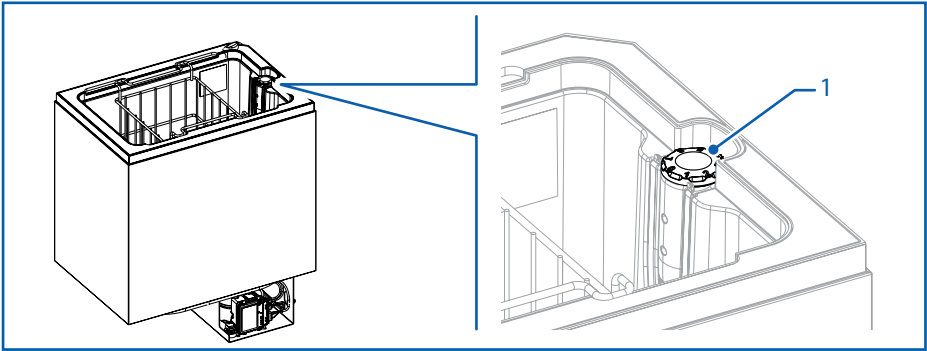
The temperature and active operating time of the product depend on the room temperature, the size and condition of the battery, the electrical load of other devices in the vehicle, the content of the product and the frequency of use.

NOTE



When the vehicle is exposed to full sunlight, it is strongly recommended that adequate ventilation of the vehicle/cab be activated.

The position of the thermostat knob **(1)** inside the compartment depends on the type of product.



5.4 Positioning accessories



The operations indicated in this paragraph can be performed by a user. Always use PPE (Personal Protective Equipment) to avoid cutting risks.

NOTE

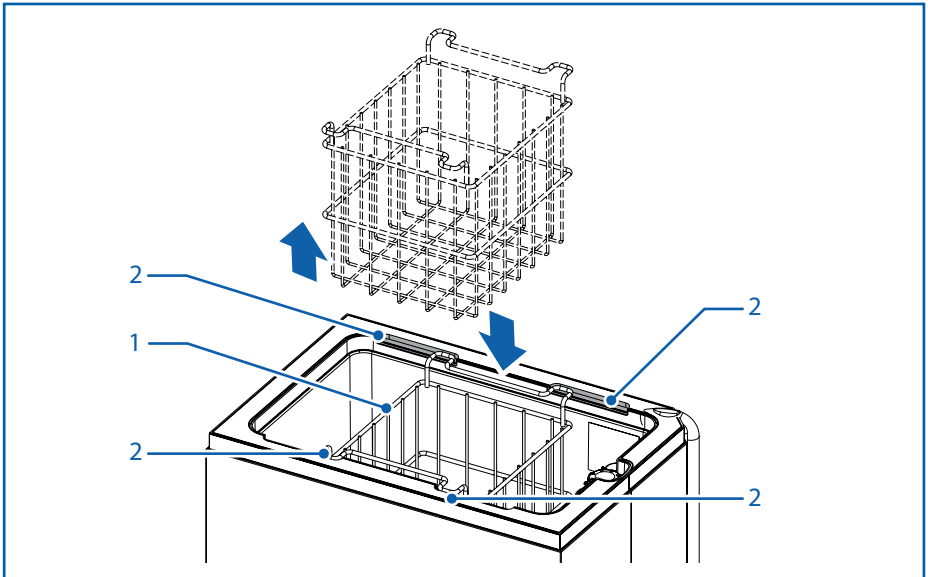


After positioning the available accessories, make sure that no food inside the product can move while driving.

5.4.1 Basket

To obtain an extra compartment in the refrigerator, use the basket **(1)** as shown in the figure.

To remove the basket, simply lift it up and to store it inside the product, place it in the slots **(2)** shown in the figure.



NOTE



This manual refers to the standard version of the product. Non-standard machines may have minor differences not described in this manual. Contact the Manufacturer with any concerns or questions.

5.4.2 Dividing shelves

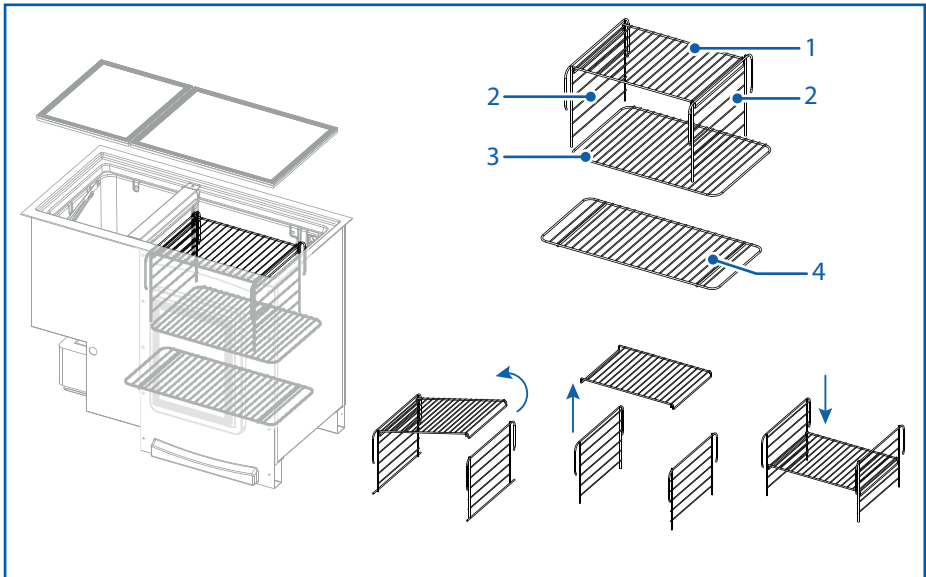
Depending on the model chosen, dividing shelves may be present that can be used for the effective organisation of the internal spaces.

This paragraph illustrates model BI172, used as an example.

The shelf group is divided into vertical and horizontal racks used as support surfaces.

The top horizontal shelf **(1)** is the only one that can be adjusted in height; simply tilt it on one of the two sides and lift it to completely remove it from the two vertical shelves **(2)**. To remove the two vertical shelves **(2)**, simply slide them out of their slots.

The other two horizontal shelves **(3)** and **(4)** are fixed. The middle one **(3)** rests at the height of the bottom of the freezer while the other, lower one **(4)** rests on the bottom of the fridge. Simply lift them to remove them.

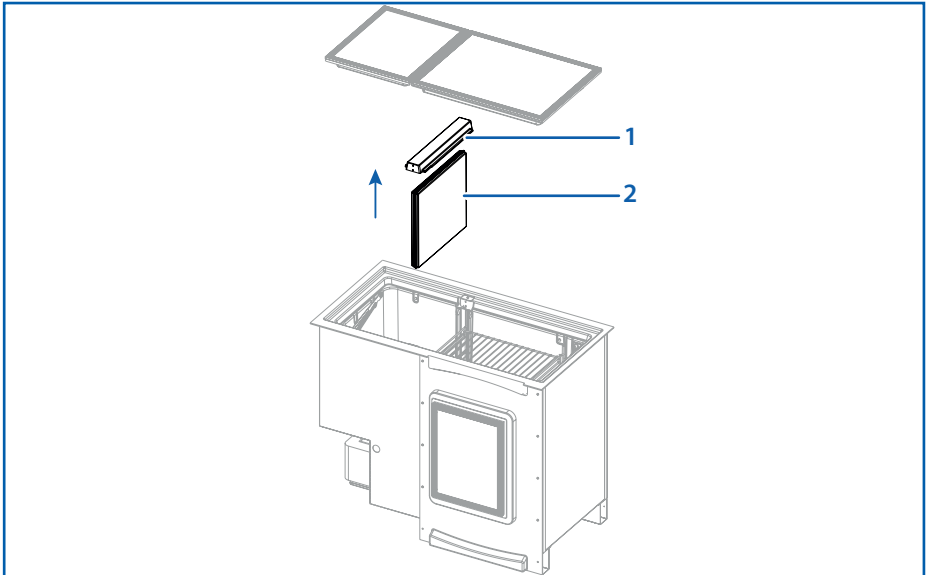


5.5 Divider

The product is equipped with a vertical divider that has the function of creating a fridge zone and freezer zone. When this divider is removed, the entire compartment can be used as a refrigerator.

Proceed as follows to remove it:

- Remove the upper frame (1).
- Remove the divider (2).
- Reposition the frame (1).



5.6 Shut-down and putting out of service



The operations indicated in this paragraph can be performed by a user.

Switch off the product before defrosting or storing the vehicle:

- Set the mechanical thermostat knob to “0” (zero) (see paragraph 5.3 to page 41).
- For the BI92 model, use on the power switch (see paragraph 4.6 to page 36).

If you will not be using the product for a long period of time:

- Empty the product.
- Defrost the product completely and remove any condensation that has formed, to avoid damage to the product or to electrical/mechanical components and/or the formation of mould.
- Thoroughly clean the entire product.

NOTE



The natural defrosting time can vary from a few minutes to several hours.

Keep the refrigerator door open and disconnect all power supplies while it is not in use.

6. Maintenance

WARNING



All maintenance and replacement operations, disposal of the power circuit upstream of the product and of the power source must be handled by qualified personnel.

This chapter contains a complete list of requirements and procedures related to maintenance of this product. Good maintenance includes periodic operations that include various types of cleaning.

If you do not understand any of the information or procedures contained in this chapter, please contact the Manufacturer for clarification before proceeding.

If product maintenance is carried out in a manner that does not comply with the instructions supplied, with non-original spare parts or without written authorisation from the Manufacturer, or in any case in such a way as to compromise its conditions or modify its characteristics, the Manufacturer will be relieved of any responsibility regarding the safety of persons or faulty operation of the product.

Any unauthorised modifications will invalidate the contractually defined warranty.

NOTE



Do not perform any kind of intervention, modification or repair other than those indicated in this manual.

DANGER



Always disconnect the product power supply before carrying out any work on it in order to avoid damage and health hazards.

The products referred to in this manual are equipped with closed cooling systems, which do not require maintenance or refrigerant refills.

The compressor is specifically designed for mobile applications and guarantees maximum performance and durability. In the winter, the product must be stored inside the vehicle, but the compressor will not work at temperatures near or below 0°C.

6.1 Routine maintenance

6.1.1 Cleaning



The operations indicated in this paragraph can be performed by a user. Always use PPE (Personal Protective Equipment) to avoid cutting risks.

It is important to clean the product regularly for optimum performance:

- Switch off the product.
- Remove any dividers, removable shelves and drawers.
- Thoroughly clean the inside of the product and its accessories with warm water and neutral soap, then dry completely with a cloth, avoiding any condensation/water residue.
- Clean and dry completely the mechanical parts inside the product.
- Completely clean the outside of the product (especially the aesthetic parts) with a soft, damp microfibre cloth.
- Wait for the product to dry completely.
- Turn the product back on.

WARNING



Do not use abrasive cleaners, metal abrasive sponges or hard brushes.
These may damage the product.
Do not clean the product with aggressive, caustic or soda-based soaps or cleaners.

WARNING



Do not expose the product to water.

NOTE



The free parts of the product are not suitable for washing in dishwashers.

NOTE



The presence of dust under the product can block the air flow necessary for correct operation.
Therefore, frequently remove all dust in this area using, for example, a Hoover.

6.1.2 Defrosting



The operations indicated in this paragraph can be performed by a user. Always use PPE (Personal Protective Equipment) to avoid cutting risks.

Since the evaporator operates at temperatures well below freezing, ice and frost will inevitably form upon it.

The humidity in the air, the temperature and the frequency with which the doors are opened can also greatly influence the formation of frost.

Ice can accumulate in the freezer compartment and on the surface of the refrigerator compartment.

The product should always be defrosted when the layer of frost reaches a thickness of 3-4 mm or more. Otherwise the product may suffer a drop in performance.

To defrost the product, proceed as follows:

- Remove all food.
- Switch off the product (see paragraph 5.6 to page 46).
- Remove ice and frost from the walls, avoiding using sharp objects as this could damage the product and cause refrigerant leaks.
- Remove, empty and dry the drip tray beneath the evaporator (if present). A towel can be placed at the base of the product during the defrosting procedure in order to facilitate water collection.
- Only turn the product back on once it has been defrosted, cleaned and thoroughly dried. Some models are equipped with a hole at the base of the inside drawer to facilitate condensate discharge. A towel can be placed at the base of the product during the defrosting procedure in order to facilitate water collection.

NOTE



Defrosting should be performed when the products can remain as cool as possible outside of the product.

NOTE



Avoid using sharp objects as this could damage the product and cause refrigerant leaks.

WARNING



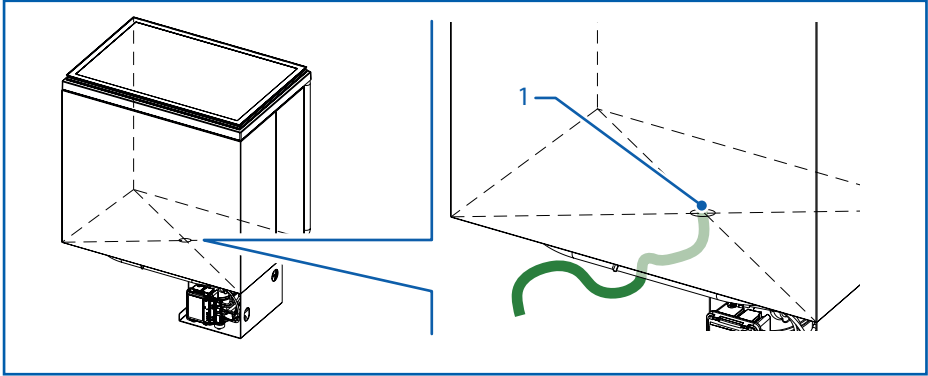
Do not accelerate the defrosting process by forcing removal of the layer of ice or with sharp objects or using a hair dryer or other electrical device.

6.1.3 Water drain in models pre-set for this function



The operations indicated in this paragraph can be performed by a user. Always use PPE (Personal Protective Equipment) to avoid cutting risks.

On models pre-set for this function, it is possible, after installation of the tube **(1)**, to periodically drain any residual water that may be present at the bottom of the product.



6.1.4 Cleaning the condenser



The operations indicated in this paragraph can be performed by a user. Always use PPE (Personal Protective Equipment) to avoid cutting risks.

- Switch off the product and disconnect it from the power supply.
- Use a gentle brush, Hoover or low pressure compressed air to clean the condenser foils, removing all accumulated dust.
- Remove any dust present on the mechanical and electrical components.
- Re-connect the product to the power supply and switch it back on.

WARNING



Do not use compressed air jets.

Do not use metal brushes.

Do not use high pressures as doing so may cause deformation to the condenser foils.

NOTE



The accumulation of dust and grease on the refrigeration condenser can cause overheating that can irreparably compromise compressor operation.

The condenser must always be cleaned when necessary.

6.2 Special maintenance

Special maintenance operations are those carried out following breakdowns or malfunctions which may involve the replacement of certain components by specialised and authorised technical personnel.

WARNING



All special maintenance operations must be carried out by technical personnel authorised by the Manufacturer.

6.2.1 Replacing the LED bulb on models pre-set for this function



The operations indicated in this paragraph must be performed by a qualified installer. Always use PPE (Personal Protective Equipment) to avoid cutting risks.

DANGER



HIGH INTENSITY LIGHT HAZARD

If the product is equipped with high luminous intensity LED lighting, avoid direct beam exposure to eyes.

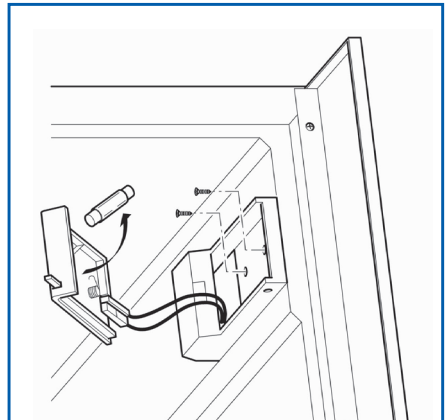
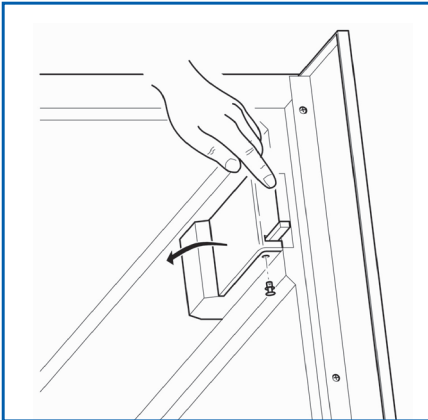
WARNING



Replacement of the LED lamp must only be carried out by qualified personnel or by Service Centres.

Proceed as indicated below to replace the bulb:

- Switch off the product and disconnect it from the power supply.
- Press down the glass of the lighting unit as shown in the illustration.
- Replace the bulb with a new one.
- Reposition the lighting unit as shown in the figures below.
- Re-connect the product to the power supply and switch it back on.



WARNING



Use only original Manufacturer spare parts.

7. Troubleshooting

WARNING



All work on electrical parts or electrical connections and the refrigerant circuit must be carried out by technical personnel authorised by the Manufacturer.

DANGER



Disconnect electrical power before performing any operations on electrical parts or on electrical connections.

Defect	Possible cause	Intervention
The product does not cool, the compressor will not start.	No electrical power. Battery in poor conditions. Faulty thermostat. Defective electronic unit.	Check to make sure that the electronic unit is receiving sufficient power and voltage; check the fuse. Verify that the internal lighting is working and that the compressor is receiving power. Check the cables, lugs and connectors. Verify that the battery is charging properly.
The compressor only performs brief attempts at starting up.	There is insufficient voltage or else a drop in voltage during the attempt to start. The protection device is activated. The Batteries are drained.	Check the cables and connections; remove any traces of oxidation or corrosion. Charge the batteries, start the motor or connect the battery charger.
The compressor functions but doesn't cool.	Loss of refrigerant through the evaporator or the tube. Contact a technician to check for refrigerant leaks from couplings or tubes. Tubes clogged.	Check the seal on the quick couplings. Perform a leak test and repair any leaks on the couplings and tubes. In the event of a leak from the evaporator, replace the product. This type of operation must be carried out by a specialised technician.

Defect	Possible cause	Intervention
The compressor runs for a long time but doesn't cool properly (reduced efficiency).	<p>Insufficient ventilation, the condenser is overheating.</p> <p>The fan is not working properly.</p> <p>Too much frost in the internal compartment, which prevents the door from closing properly, letting hot, moist air enter.</p> <p>The condenser is blocked by dust.</p>	<p>Check the conditions of product installation. If possible, remove the product from the installation cabinet: if performance improves, make improvements in the ventilation system (see 4.3 to page 25).</p> <p>Replace the fan.</p> <p>Defrost. Correct the position of the door and check the gasket.</p> <p>Clean the condenser.</p>
The fuse blows.	<p>The wrong fuse is being used.</p> <p>Defective electronic unit.</p>	<p>Check the fuse: see table in section 4.6 to page 36.</p> <p>Replace the electronic unit.</p>
The compressor is operating intermittently.	<p>Battery low or electrical cables in poor conditions.</p>	<p>Check wiring conditions, examining for loose connections, rust or verdigris.</p> <p>If the wiring must be replaced, please refer to the manual for the correct size.</p> <p>If the wiring is in good condition, check the functionality of the battery and replace it if it is in bad condition.</p>
The compressor never stops (correct product performance)	<p>Incorrect thermostat connection on the electronic unit.</p> <p>Thermostat broken.</p> <p>Condensation is not working properly, evaporator cools but not enough to cause the thermostat to stop the compressor.</p> <p>Room temperature exceeding the climate class of the product.</p> <p>Insufficient ventilation.</p>	<p>Rotate the thermostat to off position. If the product continues to run, the thermostat is defective.</p> <p>Rotate the thermostat to off position. If the compressor switches off but it is impossible to regulate temperature, replace the thermostat or recharge the cooling system.</p> <p>Check the room temperature against that of the product.</p> <p>Check the conditions of product installation. If possible, remove the product from the installation cabinet: if performance improves, make improvements in the ventilation system.</p>

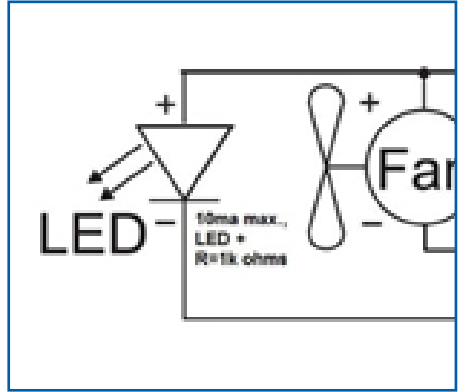
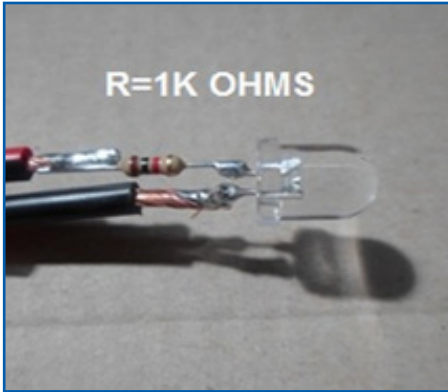
Defect	Possible cause	Intervention
The compressor never stops (poor product performance)	<p>Room temperature exceeding the climate class of the product.</p> <p>Insufficient ventilation.</p> <p>Little gas in the refrigerant circuit.</p>	<p>Check the room temperature against that of the product.</p> <p>Check the conditions of product installation. If possible, remove the product from the installation cabinet: if performance improves, make improvements in the ventilation system (see 4.3 to page 25).</p> <p>If ventilation is instead optimal, check for the presence of gas in the system, contacting a specialised technician.</p>
Excess ice on the evaporator.	Moisture infiltrations in the product.	<p>Check the conditions of the gasket on all four sides of the door. The gasket must close perfectly on the unit.</p> <p>If the formation of ice is thicker on one side, most likely there is moisture infiltration in the product is coming from that side.</p> <p>Use a moderate heat source to model the gasket into position.</p> <p>If the refrigerator is custom, check that the door closes properly on the cabinet.</p> <p>Replace the entire door if problem persists.</p>
The product cools too much.	<p>Mechanical thermostat: the temperature probe is covered or no longer in its original seat.</p> <p>Electronic thermostat: the temperature probe is blocked or defective.</p>	<p>Mechanical thermostat: position the probe in the correct place, free it from any covers. If the refrigerator continues to cool too much, replace the thermostat.</p> <p>Digital thermostat: free the temperature probe from any covers. If the refrigerator continues to cool too much, replace the thermostat.</p>
The compressor is noisier than normal.	The compressor is not properly secured on its support or it is touching the wall.	<p>Check that compressor screws are properly tightened and that nothing is in contact with it.</p> <p>The compressor vibrates and, if something is in contact with it, vibrations increase.</p>
The fan/s is/are noisier than normal.	The fan structure is bent or the fan is broken.	Remove the clamps/screws used to secure the fan. Replace if the fan continues to make noise. Make sure that all of the fan is intact. Replace if one or more fins is missing.

Defect	Possible cause	Intervention
The internal light does not switch on (where installed).	Inverted polarity. Defective bulb. Power cable disconnected.	Check the connection of the power supply cables on the electronic unit and the complete light housing. Check bulb polarity. Replace light bulb if polarity is correct.
The lid is not closing properly.	Incorrect position of the hinges. Gasket deformed.	Check the positioning of the hinges and realign them if necessary. Use a moderate heat source to remodel the gasket. Replace door if problem persists.
Door/Drawer not closing properly.	Incorrect position of hinges or deformed gasket.	Re-position hinges so that the door closes correctly. Use a moderate heat source to remodel the gasket. Replace door if problem persists. In the case of drawer refrigerators, use the adjustable rails to re-align the door.
A continuous buzzing noise is heard.	The water valve is in operation.	No operation.

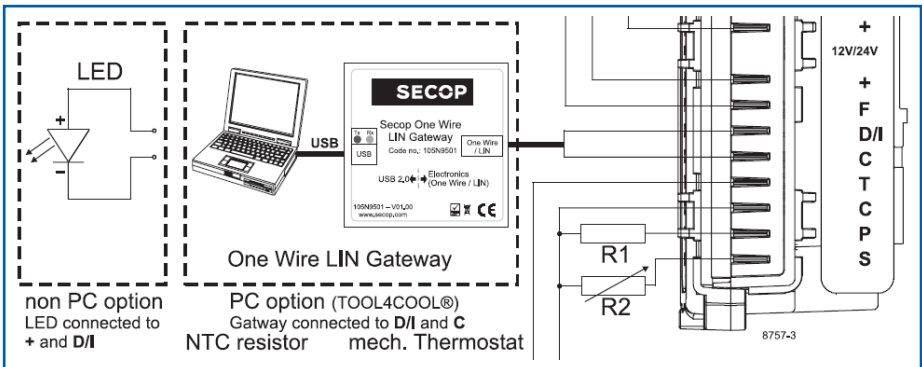
For more complicated defects requiring specialised assistance, please contact the Webasto network or an Authorised Distributor.

7.1 LEDs for diagnostics

The electronic unit has a troubleshooting function when a LED is connected as shown below.



BDMicro electronic unit connection



The number of flashes indicates the type of error.

Number of LED Flashes	Type of Error	Solution
6	Defective sensor (the sensor is defective or disconnected)	Re-connect the sensor and verify that the compressor starts working again. Replace sensor if the compressor does not work.
5	Thermal protection of the electronic unit (the electronic unit overheats if the refrigeration system has become overloaded or the environmental temperature is too high)	Remove excess gas or increase ventilation.
4	Minimum motor speed error (if the refrigeration system has been overloaded, the motor cannot maintain minimum speed of approximately 1,850 RPM)	Remove excess gas.
3	Motor starting error (the rotor is blocked or pressure inside the refrigerant circuit is too high (> 5 bar) Defective electronic unit.	The first operation to attempt is to replace the electronic unit. Replace compressor if problem persists.
2	Fan short-circuited (the fan absorbs more than 1A from the electronic unit)	Replace the fan.
1	Battery protection (voltage is outside the maximum and minimum voltages)	Check power cable conditions. Replace with new cables if necessary. Check battery conditions.

8. Warnings for disposal

WARNING



All maintenance and replacement operations, disposal of the power circuit upstream of the product and of the power source must be handled by qualified personnel.

This product complies with the Directive 2012/19/EU regarding waste electrical and electronic equipment (WEEE).


The product's proper disposal is essential to preventing negative consequences for the environment and human health.



The symbol shown on the product, the packaging and/or the accompanying documentation indicates that the product should not be disposed of as household waste. The product must be taken to an authorized collection centre for the recycling of electrical and electronic equipment. The product must be disposed of in compliance with the current local environmental regulations regarding waste disposal.

For more information regarding the disposal, recycling and reuse of the product, please contact your local authorities, your local waste collection service or the retailer/distributor from whom the product was purchased.

Packaging is manufactured from recyclable material. It bears the recycling symbol and must be disposed of at an appropriate collection centre.

The symbol  indicates that the product complies with all European Union provisions provided for its use.

The refrigerant contained in the product must be handled in accordance with current environmental regulations and good industrial practice. Avoid any leakage or spillage into the environment or emission into the atmosphere.

9. Warranty

The Indel Webasto Marine warranty complies with EU Directive 2019/771/EC.

Validity period

The product warranty is valid for 2 years with regard to the cost of labour for repair or replacement, but only if carried out by IWM network, and therefore authorised, service centres.

For specific conditions of validity in the USA, please contact Indel Webasto Marine USA.

The validity period starts from:

- 1) The date of sale indicated on the product invoice or sales receipt.
- 2) The date of the invoice or registration document of the first sale of the vehicle in which it is installed, if installed by the manufacturer of the vehicle.
- 3) In the absence of one of the above documents, the week of production indicated in the S/N (serial number).

Replacement of a product or component does not change the validity period.

The warranty covers:

- Replacement or repair of the product or of one or more components acknowledged to be faulty due to manufacturing defects.
- Breakage or malfunction of components under warranty validity despite proven proper installation and proper use.
- Labour and transport according to the operating methods described below.
- Costs for shipping the replacement product (not including charges for customs clearance).

The warranty does not cover defects, damage or malfunctions caused by:

- Negligence, neglect or improper use
- Incorrect installation or incautious handling
- Insufficient ventilation
- Incorrect electrical connection
- Undersized wiring
- Improper maintenance or maintenance performed by unauthorised personnel
- Failure to follow the instructions contained in this manual
- Transport damage
- Charges for customs clearance
- Objects subject to wear
- Professional use
- Damage caused by weathering
- Costs for dismantling and/or reassembling cabinets or other structures

Essential information for determining whether the case is covered by the warranty:

- Product code (indicated on the product label)
- S/N (serial number) (indicated on the product label)
- Invoice or sales receipt (or possibly registration document, see above in Validity period section)
- Detailed description of the defect (Attach photos if possible)
- Description of installation with particular attention to ventilation and wiring (Attach photos if possible)
- (If it is determined that the case is not covered under warranty, the customer must pay all expenses for repairs, replacements, labour, travel of persons and transport. IWM is not required to bear any expense.)

Operating procedures to be applied once it is ascertained that the case is covered by warranty:

Warranty repair of products installed in boats must be performed exclusively by service centres (CAT) that are part of the IWM network (see list at www.indelwebastomarine.com). IWM does not cover costs for service performed by others.

For products installed on boats, an IWM authorised CAT technician will come to the boat if it is located at a distance of maximum 100km from the CAT. IWM shall cover the cost of this transfer. If the boat is over 100km away, the customer can choose whether to pay the cost of the technician's transfer (in this case paying the technician directly), or to move the boat closer.

To locate the nearest service point and for travel coverage terms in the USA, please contact Indel Webasto Marine USA. IWM does not reimburse any expenses for spare parts purchased elsewhere.

Products installed on Recreational vehicles (RV):

Warranty repairs must be performed exclusively by service centres that are part of the Webasto network.

The vehicle must be brought to the service centre.

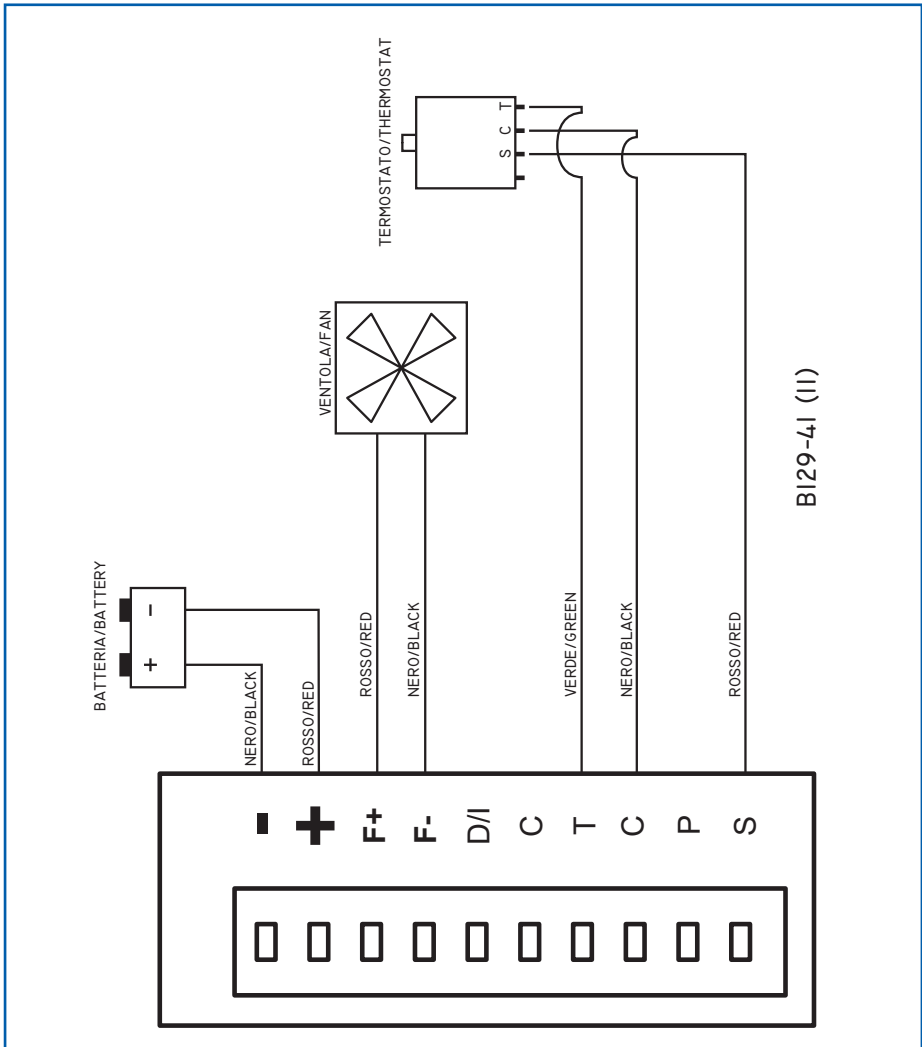
Find the service centre nearest to you at www.webasto.com

For the condition of products installed in recreational vehicles in the USA, please contact Indel Webasto Marine USA.

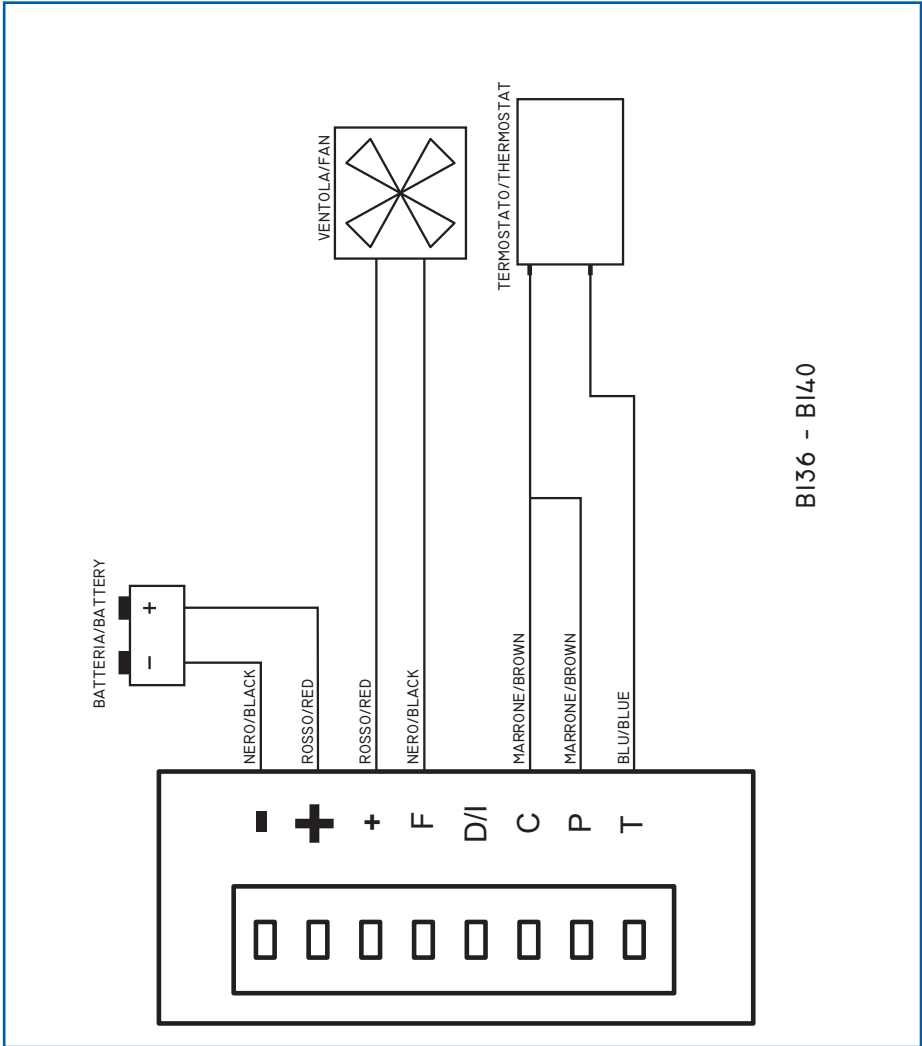
10. Attachments

10.1 Wiring diagrams

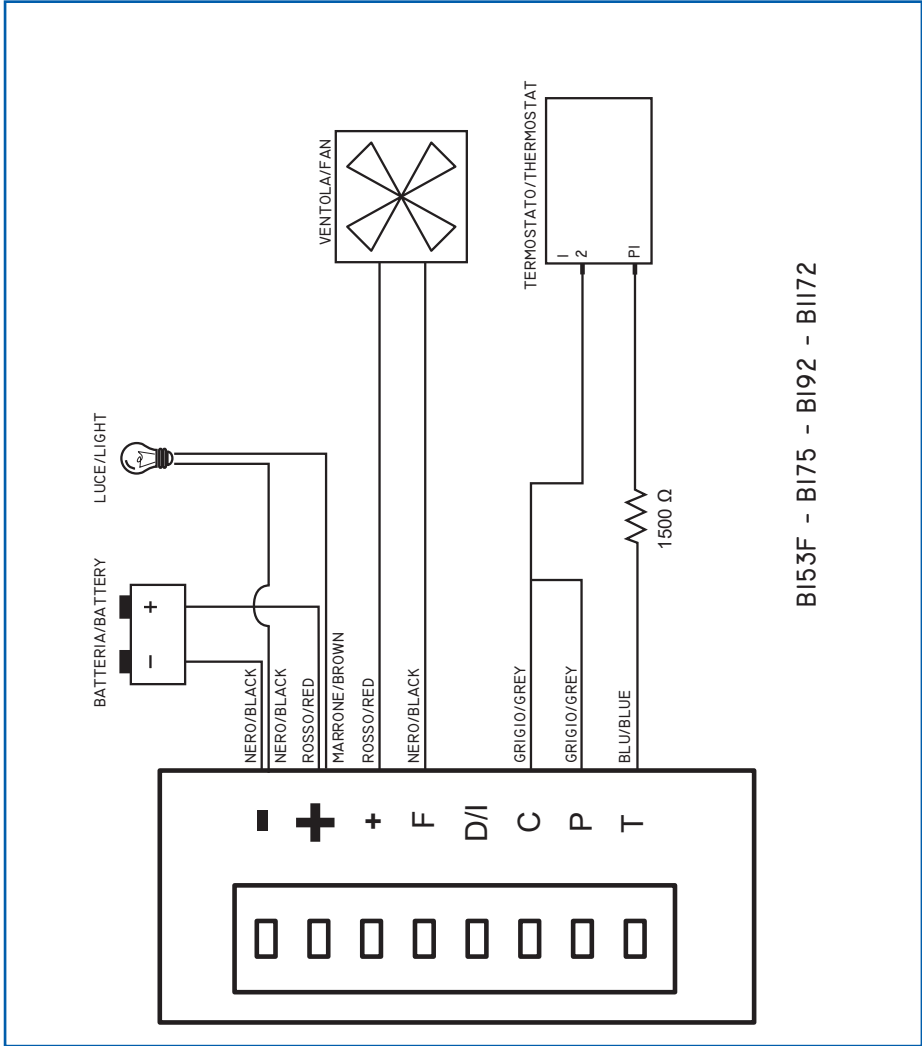
10.1.1 BI29 - BI41 DUAL



10.1.2 BI36 - BI40



10.1.3 BI53F - BI75 - BI92 - BI172





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