



INSTALLATION MANUAL Refrigerator

N4000 series

EN Original Installation Manual

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1. Introduction

General

This is the installation manual for the Thetford N4000 series refrigerator. The manual is meant for qualified installers who will install the refrigerator in a caravan or camper.

Read the information and instructions carefully and follow them strictly to install the refrigerator safely and correctly.

Also read the warnings in the user manual before testing the refrigerator after installation.

This document is version 691830/0424-V06 of the installation manual.

Our policy is one of continuous development and improvement. Specifications and illustrations may change subsequent to publication.

Please visit www.thetford.com for the most recent version.

Symbols

The following symbols may be used in this manual:



Warning. Risk of serious injury and/or damage.



Caution. Risk of moderate injury and/or damage.



Attention. Important information.



Note. Additional information.



Video. Additional instruction video available.

2. Safety

The Thetford N4000 series is a range of absorption refrigerator suitable of running on running on three different power sources; gas, 12V, and 230V. The refrigerator automatically selects the best power source.

Please read the safety instructions carefully before using the appliance.

General



Risk of serious injury through and electrocution or damage to the appliance.

- Make sure the appliance is transported and handled in the upright position, or on its side with the electronics facing down.
- Do not modify this appliance, unless the modification is authorised and carried out by the manufacturer or their agent.
- If the appliance is not installed in accordance with national and European regulations, rules and standards this will void the warranty and may lead to criminal prosecution.
- Incorrect installation or maintenance of the refrigerator may cause physical injury and/ or damage to the refrigerator.
- Do not use the drawer as a step or ladder.

Installation



Risk of serious injury through burns, explosion, suffocation, electrocution, fire and poisoning or damage to the appliance.

- This appliance should only be installed by a qualified and certified professionals.
- Only a qualified person is allowed to install the refrigerator and its electrical and gas components.
- Install the refrigerator in accordance with the local/national laws.
- Wear the correct Personal Protective Equipment during the installation.
- The electrical connections and gas components must be installed in accordance with the latest technical regulations.
- Never lift or handle a refrigerator at the power supply cables.
- When positioning the appliance, ensure cables is not trapped or damaged.

- Install the electrical and gas connections in such a way that wires can't come into contact with hot or sharp parts.
- Route the cables away from the appliance and other heat sources.
- The refrigerator must be installed in a way that allows easy access for maintenance and repairs.
- Make sure the power plug is accessible so that the appliance can be disconnected from the supply after installation.
- To avoid a hazard due to instability of the appliance, it must be fixed in accordance with the instructions.
- Do not screw into the refrigerator cabinet.
- The performance of the refrigerator may be affected by adjacent heat sources such as an oven or stove. Protect the refrigerator against any heat sources by fitting insulation.
- Make sure no equipment that produces sparks or flames is installed close to the cooling system.

Ventilation

- Make sure vents cannot be blocked by the door or other objects. An insufficient air supply can result in incomplete combustion, the forming of carbon monoxide and reduction of cooling performance.
- Ensure that vent openings are not obstructed (e.g. by opening a door) and are able to vent freely.
- In order to prevent the risk of fire in the event of uncontrolled leakage of the refrigerant system, make sure that the refrigerant charge per net room volume does not exceed 8 g/m³. Net room volume is defined as the gross room volume minus the volume of any product, equipment, or objects located in the living area. The refrigerant charge amount can be found on the serial label.
- The fully installed refrigerator must allow proper and complete discharge of combustion gases. Combustion gases may contain carbon monoxide. Inhalation of this gas may cause tightness of the chest, dizziness and can lead to death.
- If the lower vent is not on floor level, make sure all unburned gas will go to the outside (for example via a hole in the floor).
- Pay close attention to current regulations on ventilation in the country of use. The
 installation must provide for adequate air supply for combustion to the burners, safe
 removal of combustion products and avoidance of accumulation of unburned gases.
- To cool the system and to supply the burner with sufficient airflow, make sure that there is always sufficient ventilation through the outside vents.

Gas

- The gas pipe has to be installed free of tension.
- Never use rubber tubing.
- The refrigerator must be sealed from the living area of the caravan or motor home according EN1949. Air for the burner must not be drawn from the living area of the caravan or motor home and combustion gases must not enter the living area.
- Combustion gases must always be discharged upwards.

Electrical

- The electronic connections must be installed in accordance with the latest technical regulations.
- The electrical connections have to comply with EN60335.
- Do not locate multiple portable socket-outlets or portable power supplies at the rear of the appliance.
- There is no load dump protection circuit present on the CI-bus refrigerator electronics. Thetford requires that a load dump circuit (which complies with the relevant regulations) is installed on the CI-bus master if the refrigerator is connected to the CI-bus.
- The ground on the CI-bus connector should not be connected. Ensure that the refrigerator is using the same power supply ground as the CI-bus master unit. The ground on the CI-bus connector is only needed when using, for example, an external CI-bus service tool.
- The bridge D+ with LC+ can drain the battery, when cooling on DC/12V while the engine is not running.
- It is obligated to connect the AC wiring to a properly earthed power point.
- Cables, except heater cables, should not touch the burner box.

Commissioning



Risk of health issues or damage to the appliance.

- Do not switch on the appliance without first carrying out the visual and functional checks.
- If the appliance has been transported and/or been laid on its side, let it stay upright for 30 minutes before switching on.
- The refrigerator only runs on liquid gas (propane, butane or a mixture of these both). It does not run on natural gas or coal gas.
- It is recommended to use an additional filter when operating on Liquefied Petroleum Gas (LPG).
- Any error messages coming from the refrigerator and shown on the master display, should not disturb the driver. For example: lights and/or sounds coming from the master display while driving.

Service



Risk of serious injury through burns, explosion, suffocation, electrocution, fire and poisoning or damage to the appliance.

- This appliance should only be serviced by a qualified and certified professionals.
- Never expose the refrigerator to water or moisture.

- Never use naked flames whilst performing maintenance or repairs on gas lines or when checking fittings for leaks. Gas may ignite and cause an explosion resulting in serious physical injury and/or damage to the product.
- Never reposition or change the electronic or gas components or parts.
- If the supply cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard.
- Never open or damage the cooling system at the back of the refrigerator. The cooling system is pressurised and contains substances that can be harmful to your health.
- Never open or damage the cooling system at the back or on the inside of the refrigerator. The cooling system is pressurised and contains flammable substances.
- Use only genuine and approved parts and materials.
- Never reposition or change the electronic components unless stated otherwise in this manual.

3. Serviceability

The installer of Thetford products is responsible for correct installation according to the Thetford installation instructions to ensure the functionality and serviceability of the product.

In terms of serviceability, this means that a dealer or authorised Thetford service partner must be able to remove and re-install the Thetford product within the time that is allowed according to the Thetford time-list, using standard tools and equipment.

This is to claim any warranty during the warranty period after the purchase date.

In case of any queries on this subject, a Thetford local service representative can be contacted for additional support related to the installation of the product.

4. Designation codes, drawings and models

Each product has a specific identification code, the designation code. The designation code can be found on the data badge. See chapter Service & questions for the location of the data badge. The different positions of the code stand for different variations of the refrigerator. In these instructions, the designation will be used as reference.

Table 1: Designation example

N4150	Е	- A	152	w	190	R	52	CI
Fridge model	Fridge version	Market	/ '	Type of cooling unit	Type of door	Hinge position		Type of communication

Table 2: Available drawings and models

Model*	2D drawings	3D files
N4080	le942	le932
N4090	le1275	le1275
N4141	le1122	le1124
N4142	le1123	le1125
N4145	le1278	le1278
N4150	le950	le940
N4170	le1279	le1279
N4175	le951	le941
Power Cable Connections	le952	N.A.
Vent Cut-out Positions	le965	N.A.

The 2D drawings are available upon request, 3D files are only available for the professional builder.

^{*} Not all models are available for the Aftermarket (A-market in Table 1: Designation example

5. Technical specifications

Refrigerator specifications

Model	Display	Total volume (L)*	Volume frozen food comp. (L)	Energy consumption (kWh/24h)	Energy consumption gas (g/24h)	Net weight (kg)
N4080	LED+	71	9.8	2.6	270	22.5
N4090	LED+ or LCD	78	10.8	2.9	300	22.5
N4141	LED+ or LCD	135	15.3	4.5	468	38
N4142	LED+ or LCD	137	15.3	4.5	468	37
N4145	LED+ or LCD	136	25.9	4.3	437	37
N4150	LED+ or LCD	145	27.4	4.3	437	37.5
N4170	LED+ or LCD	156	29.2	4.3	437	39
N4175	LED+ or LCD	165	30.7	4.3	437	39.5

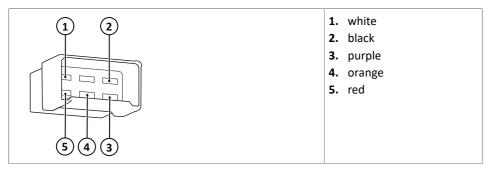
^{*}Total volume and energy consumption has been calculated according to IEC 62552-2020.

Electrical specifications

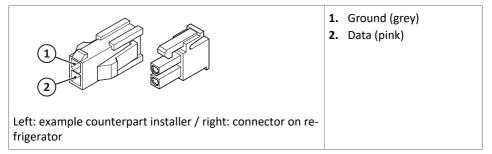
Operating window AC*	210V-250V / 50Hz-60Hz
Fuse AC	2A slow
Power requirement 12V high current	12V-14.4V DC (at the refrigerator - when 12V heaters are enabled)
Cable dimensions (Cable thickness vs cable length)	 4mm2 = > 2.5m 6mm2 = > 3.5m 10mm2 = > 6m
Fuse high-current	25A
High-current supply	red cable (+) and white cable (-) for heating element. Only switched if signal on D+.
Fuse low-current	1.1A
Low-current supply	purple (+) and black (-) for electronics
D+ signal	orange + when engine runs
If D+ signal is not present on vehicle	No cooling on DC/12V. Possible solution: bridge D+ with LC+.
DC power connectors	Refrigerator: Stocko VV2028.110 G PA6 V2.Cable length: 250mm Counterpart: TE880297-1, or any other equivalent.
CI-bus connectors	Refrigerator: Molex 39012020. Cable length: 90mm Counterpart: Molex 39012021

^{*} Due to sophisticated AC regulation it is difficult to perform a power measurement. Power measurement is only possible with a professional power analyser.

Layout of the DC power connector



Layout of the CI-bus connectors



Gas specifications

Category	C11
Gas type	I_{3+} (G30: 28-30/G31: 37 mbar) for BE, FR, EI, LU, PT, ES, GB, GR, IT I_{3B}/I_{3P} (G30/G31: 28-30 mbar) for DK, DE, IS, NL, SE, FI, NO Butane = G30 / Propane = G31
Diameter gas tube	8mm
Gas pressure	See the serial label inside the refrigerator (see Service & questions) for pressure settings of the gas pressure control

6. Before installation



Read the applicable instructions in chapter Safety first.

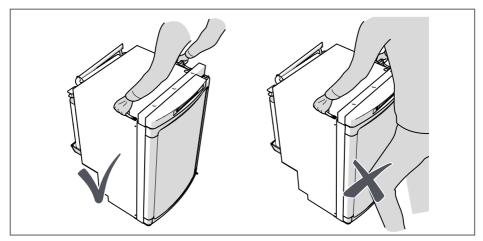
Content of the box

For the single-piece packaged appliance, check the content:

- Appliance
- Shelves, drawers and bins
- Installation package
- User manual
- Installation manual



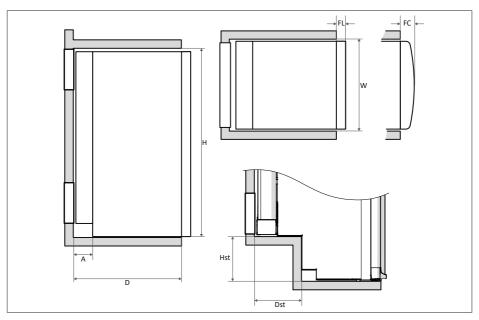
If something is missing, please contact your dealer.





Only small refrigerators: carry the refrigerator at the strap handles on top. Do not use your knee to lift the refrigerator.

Installation dimensions



- The indicated dimensions refer to the cabinet enclosure of the appliance.
- Ensure that the furniture panelling is able to handle the forces created by the connection.
- When a model N4141 or N4142 refrigerator is put next to a wall, it is important to keep a minimum distance of 15mm between the door and the wall, to be able to open the door completely.
- For flat door models, excluding N4080, there is also the possibility to build in the refrigerator in such a way that the refrigerator door is aligned with the front of the installation cabinet.

Table 3: Mounting dimensions

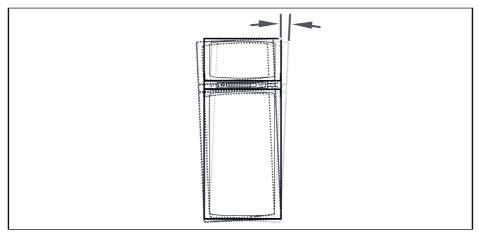
Model	Н*	w	D	Hst	Dst	FL	FC	Α
N4080	825	487.5	530 - 570	209	186	43	-	130 - 170
N4090	825	526.5	530 - 570	209	186	43	-	130 - 170
N4141	1504	419.5	530 - 570	-	-	43	-	130 - 170
N4142	1504	419.5	530 - 570	-	-	43	-	130 - 170
N4145	1249	526.5	516 - 556	-	-	43	-	130 - 170
N4150	1249	526.5	516 - 556	-	-	-	78	130 - 170
N4170	1249	526.5	566 - 606	-	-	43	-	130 - 170
N4175	1249	526.5	566 - 606	-	-	-	78	130 - 170



*Height is including feet (8mm), except for models N4141 and N4142. Models N4141 and N4142 have no feet. For these models, maintain a minimum distance of 12mm from the floor to prevent the door from scratching the floor.

Preparations

Make sure the refrigerator can be installed on a flat and stable floor. For optimum performance the refrigerator must be level. Performance is still guaranteed within the limit of ± 2.5 degrees.

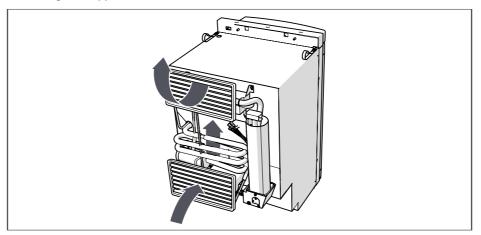




Notice that the tilt of the chassis or floor can already be a few degrees.

Ventilation

The refrigerator performance depends on good ventilation through two vents in the wall of the vehicle. Cold air comes in through the lower vent, passes the cooling unit and leaves hot through the upper vent.



- Vents are available at authorised local Service Centres. For further instructions, see the installation instructions of the vents.
- Combustion gasses will be extracted via the heat cap (1) through the upper vent, when installed properly.
- For PVC tubes and/or water tubes within the sealing space, Thetford recommends
 using a heat shield or creating a minimum distance of 35mm (2) between heat cap and
 tubes.

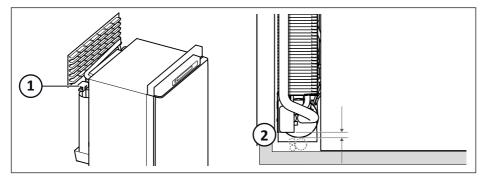


Table 4: Vent size

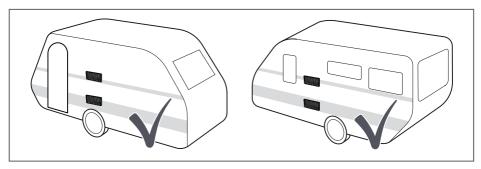
Model	186 x 483mm	257 x 432mm	281 x 523mm
N4080	X	-	-
N4090	X	-	-
N4141	-	Х	-
N4142	-	Х	-
N4145	-	-	Х
N4150	-	-	Х
N4170	-	-	Х
N4175	-	-	Х

Vent position

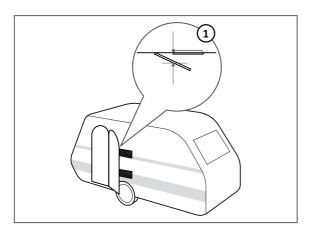
The recommended installation is when the vents are not covered.



See Table 2: Available drawings and modelsfor the applicable 2D-drawing for more detailed installation information.

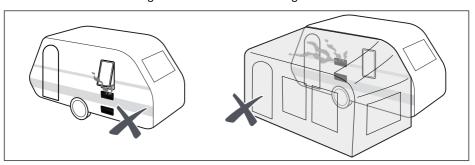


When installation is next to the caravan door, make sure that there will be at least a 25mm distance between the vents and the door.



1. Min. 25mm

Make sure that combustion gases can not enter the living area.

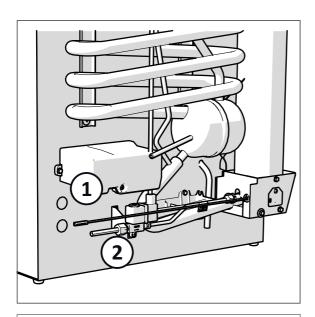


Power supply

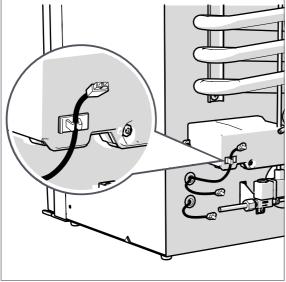
The refrigerator is designed for powering by liquid gas (propane, butane or a mixture of these both), 12V DC or 230V AC.

Connection points

The connection points for gas, electricity and CI-bus are located at the rear of the refrigerator.



- **1.** Electricity connection point
- 2. Gas connection point



CI-bus connection point.



The CI-bus connection is not available for models with a battery pack.



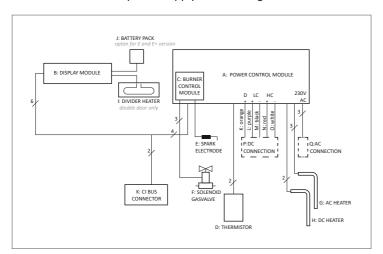
Do not use the CI-bus cable clip to guide any other cables than the CI-bus connector cable.



For detailed information about the type and dimensions of the inlet of the gas tube technical drawings are available upon request.

Wiring diagram

To connect AC and DC power supply use this diagram:



K: orange L: purple

M: black

N: red

O: white

P: DC connection

Q: AC connection



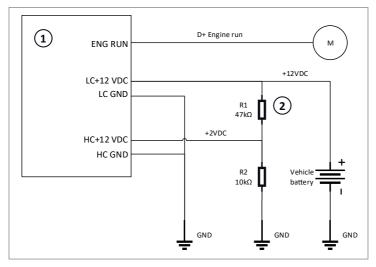
Refer to the sticker on the refrigerator for the complete wiring diagram.



See Table 2: Available drawings and modelsfor the applicable 2D-drawing for connector set-up.

2-way option

When the 2-way option is connected, the 12V DC power supply will be deactivated and only the gas and AC power supply are available. To use the 2-way option, connect the wiring according to this diagram:



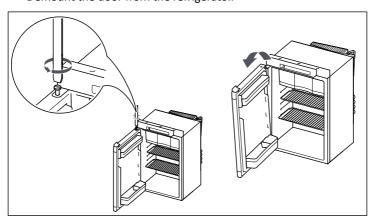
- 1. 12V connector to the Power Control Board (provided by Thetford)
- 2. Build a cable bridge (to be done by OEM)

Installing door panel

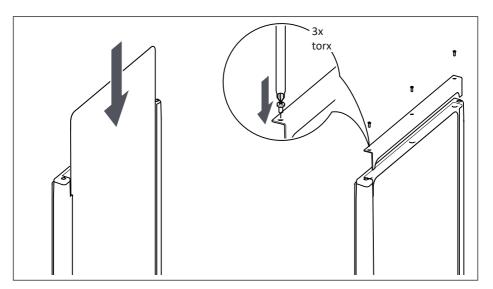
To match the refrigerator with the interior, a door panel can be installed.

For all models (exept N4141/N4142)

Demount the door from the refrigerator.



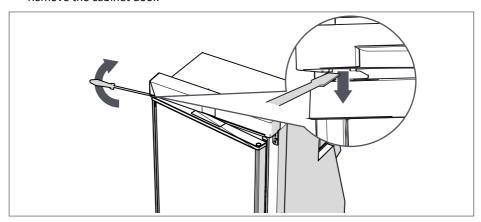
- Slide the door panel into the holder.
- Install the panel retainer.



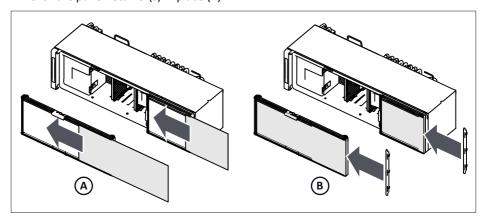
• Reinstall the door in reverse order.

For N4141/N4142

Remove the cabinet door.



- For N4141: Slide the panels in the door and the drawer (A).
- For N4142: Slide the panels in the door (A).
- Click the panel retainer(s) in place (B).



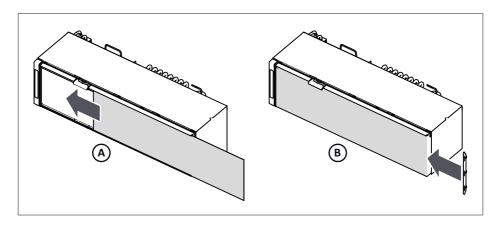


Table 5: Panel sizes

Model	Door type	Thickness (mm)	Panel size (mm)
N4080	Flat	3	H 732 x W 436
N4090	Flat	2	H 742 x W 501
		2.7	H 742 x W 500
N4141	Flat fresh food	2.7	H 950 x W 393
	compartment	2	H 950 x W 394
		1.5	H 950 x W 395
		2.7	H 453 x W 393
	Flat drawer	2	H 453 x W 394
		1.5	H 453 x W 395
N4142	Flat	2.7	H 1425 x W 393
		2	H 1425 x W 394
		1.5	H 1425 x W 395
N4145/N4170	Flat fresh food	2	H 872 x W 501
	compartment	2.7	H 872 x W 500
		2	H 278.5 x W 501
	Flat frozen food compartment	2.7	H 278.5 x W 500
N4150/N4175	Curved fresh food compartment	3	H 876 x W 469
	Curved frozen food compartment	3	H 275 x W 469



Measurements are based on form-retaining material.

Door conversion

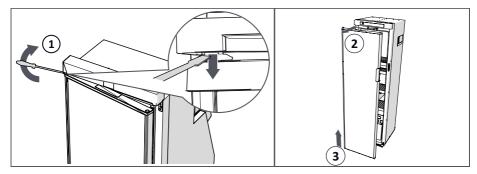
If needed the side in which the refrigerator door opens can be reversed.



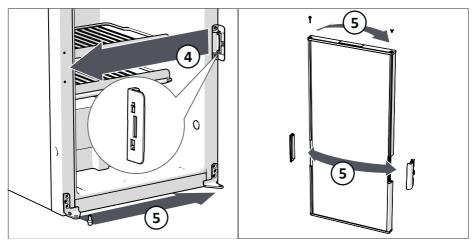
Images may differ from your model.

N4141/N4142

- Open the door a little and push the hinge pin down with a screwdriver (1).
- Pull the hinge corner to the front (2).
- Lift the door (3) out of the hinges.



- Move the lock (4) on the refrigerator from one side to the other.
- Move the hinges, hinge pin, hinge hole plug, the handle (5) and the travel lock (if equipped) on the door, from one side to the other.
- Mount the door back on the hinges.



For all other models

To convert the door(s) on the other models, a Thetford door conversion kit is necessary. Refer to the installation instructions supplied with the kit.

7. Installation



Read the applicable instructions in chapter Safety first.

Connecting gas

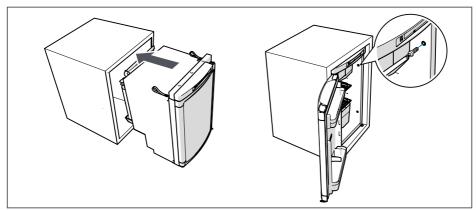
Connect an 8mm gas tube to the gas connecting point of the refrigerator.

Connecting electrical supplies

- Connect the AC and DC power supply according to the sticker on the refrigerator and the values mentioned in Technical specifications.
- To connect the refrigerator to the compatible central control board of the vehicle, use the CI-bus protocol (please refer towww.civd.de).

Installing

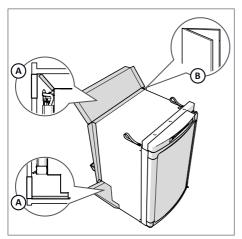
- Slide the refrigerator to the back of the furniture.
- Fix the refrigerator in place with the screws, using the pre-drilled positions in the cabinet.
- Use the white caps for finishing.
- The refrigerator has fixating points both on the left and right side of the cabinet.
 - For the models N4141, N4142, N4145, N4150, N4170 and N4175 6 screws and 6 white caps are supplied. For the models N4080 and N4090 4 screws and 4 white caps are supplied.



Seal the refrigerator from the living area.



As an example how to do this: apply strips to the rear and sides (B) of the refrigerator and fix the upper and lower flap (A) of the combustion sealing.



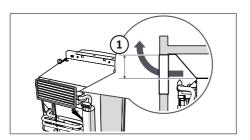
- Install the vents.
 - 0

Use the proper vents for your refrigerator model. The correct measurements are shown in Before installation.

Installing vents

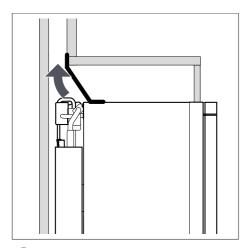
Upper vent 186 x 483mm

Option 1 (preferred): Install the upper vent in the wall of the vehicle at the top of the refrigerator.



1. Min. 110mm

Option 2: Provide ventilation through a chimney on the roof.

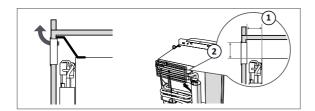




Make sure, that with a chimney on the roof, the refrigerator is still accessible for service.

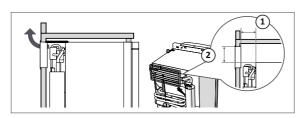
Upper vent 257 x 432mm

 Option 1 (preferred): Install the upper vent in the wall of the vehicle at the top of the refrigerator.



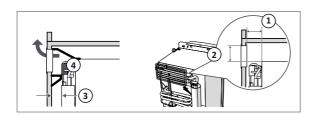
- 1. 135 ± 5mm
- 2. Min. 130mm

• Option 2: Install the upper vent in line with the top of the refrigerator.



- **1.** 135 ± 5mm
- **2.** 0 ± 5mm

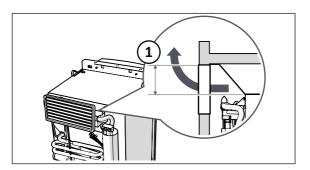
- Option 3: Install the upper vent with a baffle (3) from the bottom of the condenser (4). Baffle dimensions:
 - If (1) is 140-150mm, then baffle (3) should be 30mm.
 - If (1) is 150-160mm, then baffle (3) should be 40mm.
 - If (1) is 160-170mm, then baffle (3) should be 50mm.



- **1.** 140-170mm
- **2.** > 70mm

Upper vent 281 x 523mm

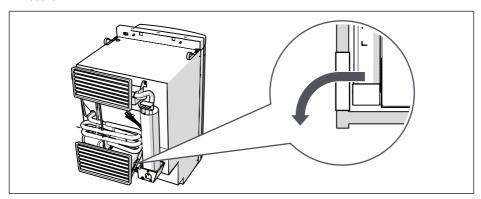
• Install the upper vent in the wall of the vehicle at the top of the refrigerator.



1. Min. 175mm

Lower vent (all sizes)

Install the lower vent in the wall of the vehicle on the floor level behind the power board.



A

This vent is also used for periodical maintenance or repairs of the refrigerator.

8. After installation



Read the applicable instructions in chapter Safety first.

Visual checks

Check if:

- All packaging materials have been removed.
- Sealing has been applied correctly.
- Drain hose is not pinched or blocked, has free access to the outside and the correct angle to drain.
- Ventilation openings are not blocked.
- Electrical cables are not pinched or damaged.
- Electrical cables are not routed close to heat sources (such as hob, oven or heater) and ignition sources.
- Electrical connectors are seated correctly.

Functional checks

Check if:

- Appliance can be switched on/off.
- All piping and connections do not leak.
- Appliance can operate on gas, and if the gas pressure is according specification.
- Refrigerator cools correctly, this means at 25 degrees Celsius ambient temperature the empty cooling cabinet should reach <5 degrees Celsius in 8 hours.
- Light (if present) in the cooling compartment is working.
- Vegetable bins can be removed from the appliance.
- Door can be closed correctly.

9. Service & questions



Read the applicable instructions in chapter Safety first.

Service

Before any service work is started, the appliance should have been left to cool and be disconnected from both the gas and electrical supplies. After each service the appliance must be checked for electrical safety, gas soundness and must be sealed from the living area.

Questions

If you have questions about your product, parts, accessories or authorised services visit www.thetford.com.

If you contact an authorised local Service Centre in your country, provide the details of the model and serial number plus the date of purchase.



Warranty

For our warranty clause, please refer to the conditions mentioned on www.thetford.com.

Declaration of Conformity

Thetford hereby declares that this product is in compliance with the essential requirements and other relevant provisions of the applicable Directives and Standards. A copy of the Declaration of Conformity can be found at www.thetford.com.



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