Instruction manual

ALC refrigerator

Refrigeration device

The photo above is for reference only and may show options not included in the standard equipment. The real appearance, colour and structure of the material may differ from the ones presented in the photo.

KVK/KB0 65828976
BTW NL856277290B01

Apollo Service Handelsonderneming B.V.
Landweer 12, 5411 LV, Zeeland

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INTRODUCTION

These Instructions for Use are intended to familiarise users of laboratory/pharmaceutical refrigeration, freezer or refrigeration/freezer devices with the information necessary for the start-up, operation and maintenance of such devices.

1.1 General information

WARNING

Please read this manual carefully before starting the device. The design of the device ensures that optimum operating parameters are achieved, provided that all the instructions in this manual are followed.

To ensure safety, correct operation and the best possible performance, the manufacturer recommends that users learn about the operation, maintenance of the device and basic safety issues. Follow the instructions carefully. This will prevent accidental damage and allow safe use of the device.

WARNING

Laboratory and pharmaceutical electrical devices require special precautions in terms of electromagnetic compatibility. Please note that the device must be installed and put into operation according to the instructions in the manual.

It is essential to follow the conditions of use and safety instructions described in the manual. This prevents improper use of the device, which can put patients and operators at risk, as well as lead to damage to the device.

Apollo Service Handelsonderneming B.V. is not responsible for damage resulting from failure to follow this manual.

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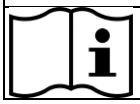
1.2 Labels and symbols

In this manual, warnings and special instructions are indicated by the following symbols:

 **WARNING**	If not observed: danger to persons.
 **CAUTION**	If not observed: danger to objects, the device or individual device functions.
 **NOTE**	Additional useful tips and information. (The symbol "i" stands for "information.")
	Refer to the instructions for use

Note
Symbols representing operating elements as well as device indicators and label symbols are described in Chapter 4 of this manual.

1.3 Target group

These Instructions for Use are addressed to:

- qualified laboratory/pharmaceutical personnel
- qualified laboratory technology personnel with an electronic technology education or other related education.

WARNING
Only persons who meet the above requirements are authorised to use and service the device.

BASIC PRODUCT INFORMATION

Apollo Service Handelsonderneming B.V. refrigeration and freezer devices are available in the form of cabinets and display cases or a combination of the two (with the latter featuring two refrigeration systems).

2.1 Intended use of device

The refrigeration device is designed to store materials and samples at a temperature ranging from +2 ºC to +10 ºC.

The design of the device ensures that the optimum operating parameters for the type of device are achieved, provided that all the instructions in this manual are followed. To ensure proper operation and the best possible performance, the manufacturer recommends that users learn about the operation, maintenance of the device and basic safety issues. Follow the instructions carefully to prevent accidental damage.

In the case of devices with two cooling units, the entire refrigeration-electric system should be viewed as two independent, individual systems that make up the device.

CAUTION
The cabinets and display cases are controlled by an electronic thermostat and are designed for continuous operation.

Each laboratory/pharmaceutical refrigeration, freezer and refrigeration/freezer device has the following features:

- it is designed for continuous operation
- it has a corrosion-resistant and energy-efficient housing
- it has a stable and roll-over resistant housing (optionally, it can be fitted with lockable castors)
- optionally, it can be fitted with castors (two of which are lockable)

2.2 Compliance

The device was designed and manufactured in accordance with the requirements of:

Machinery Directive — 2006/42/EC,
EMC Directive — 2014/30/EU,
RoHS Directive — Directive 2011/65/EU.

2.3 Further development

Apollo Service Handelsonderneming B.V. reserves the right to make changes due to technical modifications, product improvements or regulatory changes.

SAFETY OF USE

The device is designed to be operated by adults only and is not intended to be used by persons with limited physical, sensory or mental ability, as well as those with no necessary experience. Under no circumstances may children play in the vicinity of a working device, let alone use it for play.

WARNING
The device is not intended for use by persons with limited physical, sensory or mental abilities (including children).

3.1 Safety instructions for using the device

Laboratory/pharmaceutical refrigeration and freezer devices can be operated in ventilated rooms within the following ambient temperature range:

- cabinets and refrigerated display cases: from +16 to +30°C, with relative humidity not exceeding 55%,
- cabinets and freezer display cases: from +16 to +25°C, with relative humidity not exceeding 60%,
- refrigeration and freezer devices: from +16 to +25°C, with relative humidity not exceeding 60%.

For the best operating conditions, the user should set up the device in the coldest area of the room. The device should not be exposed to direct sunlight or precipitation or installed near heat sources (radiators, wall heating systems, etc.).
The device should not be operated in the vicinity of devices emitting strong electromagnetic fields, e.g.: X-ray, CT scanners, MRI machines, etc.

WARNING

- After the device is delivered, check its technical condition and equipment according to the instructions for use; notify the seller of any damage within 24 hours.
- At the place of use, level the device and if the product has castors, lock the brakes.
- Keep the device in good working condition.
- Products to be stored in freezer devices must be placed inside the devices frozen, with their temperature corresponding to the storage temperature.
- Do not overload the device, i.e. ensure that the loading is in accordance with the technical data and observe the permissible load on the shelves (drawers).
- Products should only be placed inside the refrigeration/freezer device once its interior has been cooled/frozen.
- Position the stored products in such a way as to allow air circulation through the evaporator and inside the device.
- **Never cover or obstruct the device's vents;**
- **Never use mechanical equipment and other means to accelerate thawing**
- **Tampering, altering or damaging the refrigerant circuit is strictly prohibited**
- **Using electrical appliances inside the device's refrigeration compartment is prohibited, except in cases where their manufacturer allows such use.**

- Use water and dishwashing detergent and a soft cloth or sponge to wash the device's interior; always disconnect the device from the mains beforehand.
- Vacuum the front surface of the condenser every two months, and do this more often if the area is dustier.
- Open the door for the shortest possible time.
- Use only the equipment and accessories supplied with the refrigeration device,
- Keep a minimum distance of 10 cm between cabinets when arranging them in a row; this particularly applies to freezer cabinets. Failure to maintain this spacing will result in ice forming in the space between the cabinets.

WARNING
If the cabinets are arranged in a row, their bodies should be connected by an equipotential bonding cable. This operation may only be carried out by authorised personnel.

If damaged, disconnect the device from the mains and have it repaired.
The manufacturer recommends that people using the device be trained in the operation of the device, as well as have training in basic health and safety.

WARNING
Connect the device to the mains with a functioning system protecting against electric shock.

3.2 Safety instructions for using the device

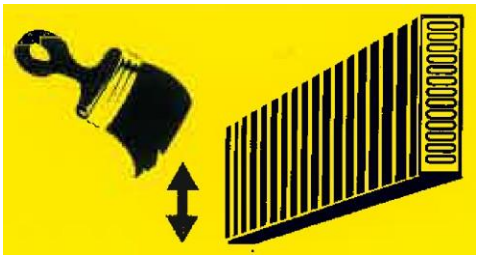
WARNING
It is strictly prohibited to:
- connect the device to the power grid without making sure that the electric shock protection is working properly,

CAUTION
- put unfrozen products into the freezer device,
- cover or obstruct the vents of the device,
- tilt the device at an angle greater than 45°, however, if it is necessary, wait for approximately 1h before starting the device (otherwise you risk damaging the compressor),
- position the devices close to heat sources,
- position the devices in the vicinity of electromagnetic field emitters

Qualified personnel, service technicians or an employee of Apollo Service Handelsonderneming B.V. should carry out annual technical safety checks on the device for a fee. Each service intervention should be recorded in the service log for the devi

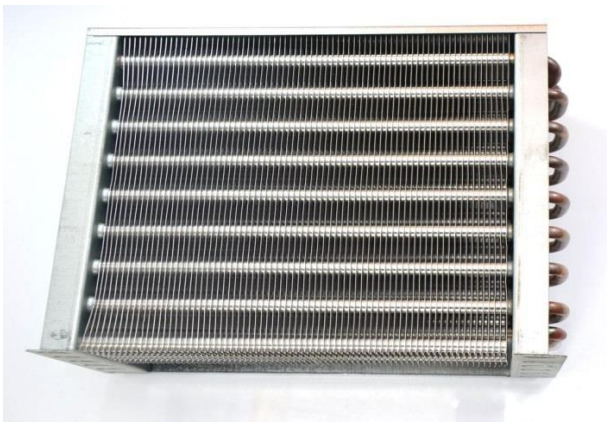
CAUTION
Condensers of refrigeration and freezer devices must be cleaned regularly.

- When cleaning the condenser, wearing of protective gloves is recommended – risk of injury.



Symbol indicating the need for regular cleaning of the condenser –
It is recommended to brush with a soft brush in up and down strokes, using a cleaning agent, and then vacuum thoroughly.

Dirty condenser



Cleaned, vacuumed and washed condenser

WARNING
Before cleaning, the device must be disconnected from the power grid by pulling the plug from the socket.

The device's nameplate is located on its back. It specifies the electrical supply requirements and the serial number of the device.

3.3 Safety instructions regarding the impact of the environment

WARNING

- The device may malfunction if exposed to strong magnetic fields (e.g.
- radiotherapy and surgical devices). In such cases, position the refrigeration, freezer or refrigeration/freezer device further away from the interfering device or avoid using both devices simultaneously.
- The device can be affected by portable and personal devices such as, for example, cell phones.
- Before moving the device, disconnect it from the power grid by pulling the plug out of the socket.
- Place the device on a flat horizontal surface. Once set, lock the front castors.
- The device must not be used in the vicinity of:
- flammable materials (e.g. gases, liquids),
- flammable mixtures of anesthetics with air,

- The device must not be used in close proximity to devices that generate heat.
- The device must not be placed directly next to or stackedwith other devices. If it is necessary to use the device near other equipment, check that operation is running smoothly.
- Arrange the products so that they do not interfere with the air circulation inside the device.

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SYMBOLS USED

Disconnect the device from the power source before opening the housing. Danger to life and limb may occur. Only qualified professionals with electronic or other related training are authorized to open the housing.

Follow these instructions for use at all times!
Failure to do so may result in danger to life and limb and risk of equipment damage.

Grounding designation.
Used only on the device's interior.

This symbol indicates that the product must not be disposed of with household waste. For disposal, the device must be taken to a specialised collection point or sent back to the manufacturer.

START-UP

Before the first start-up of the product, disinfect the device with generally used disinfectants according to the notes in section 7.1.

5.1 Setting up the device

- The refrigeration, freezer or refrigeration/freezer devices should be placed in areas that do not experience significant temperature fluctuations or drafts and are not exposed to sunlight. Any of these factors can adversely affect temperature regulation.

- Place the refrigeration, freezer or refrigeration/freezer device in a place that is not exposed to strong electromagnetic fields generated by, for example, X-ray machines, CT scanners, etc.

- Refrigeration, freezer or refrigeration/freezer devices should not be installed on production floors near welding machines, welders etc., which emit strong electromagnetic fields.

- The device can only be set up on flat, horizontal surfaces.

- After setting up any devices equipped with castors, the front castors must be locked. This prevents unintentional movement of the device, e.g. when opening doors or sliding out drawer.

- After setting up any device equipped with feet, level it by screwing or unscrewing the feet accordingly.

- The device must be set up in a place that allows you to fully open the door (and optionally, fully extend the drawers). Please consider the ambient conditions listed in the technical data when setting up the device. In addition, there should be a good supply and discharge of air to and from the condenser.

  Users must follow the recommendations below:

  - the room must have adequate ventilation,
  - the room must be at least 50 cm higher than the tallest element of the device body,
  - the refrigeration, freezer or refrigeration/freezer devicemust be positioned at least 10 cm from the room's wall.

- The device generates heat while active. Free air circulation and ventilation must be provided to allow the heat to vent.

Installing the device in a room that does not meet the above requirements will void the warranty.

5.2 Connection to the power grid

Refrigeration, freezer or refrigeration/freezer devices are designed to be connected to an electric power grid with a protective earthing conductor (TN-S system).

For power grids using a different earthing method, please consult with Apollo Service Handelsondernming B.V. on how to connect your device.

The power grid (plug socket with a protective contact) must comply with the technical data on the device's nameplate and the applicable regulations for electrical systems. Refrigeration, freezer or refrigeration/freezer devices are powered from the power grid via a power cord. Connect the plug of the power cord to a grounded plug socket.

5.3 Switching refrigeration, freezer or refrigeration/freezer devices on and off.

It is prohibited to:

- connect the device to the power grid without making sure that the electric shock protection is working properly,
- put unfrozen products into the freezerdevice,
- cover or obstruct the vents of the device,
- tilt the device at an angle greater than 45°; if this is necessary for whatever reason, wait for approximately 1h for the oil in the compressor to stabilise before starting the device,
- position the devices close to heat sources.

FUNCTION DESCRIPTION

6.1 Temperature maintenance process

Laboratory/pharmaceutical refrigeration devices are equipped with electronic controllers to ensure optimal use of their capabilities. Manufacturer programs these controllers based on in-depth studies and customer feedback. Nonetheless, the controller may need to be reprogrammed to match the customer's needs, e.g. where the room is too humid or the turnover of stored products is very high. This must be agreed upon with the manufacturer before purchasing the device. There are two groups of controller settings:

- available to the user,
- available to service technicians (these parameters can only be changed with the manufacturer's approval).

The operation of the device is fully automated. The manufacturer pre-sets the parameters of the electronic thermostat to ensure that the user can adjust the interior temperature range (making it user-adjustable), as well as effectively defrost the evaporator and drain the condensate. The method of setting the desired temperature is described in the appendix to these Instructions for Use, based on the temperature controller used. Any change in the system parameters available to service technicians can be made only with the manufacturer's approval.

All the controllers used by the manufacturer offer a manual defrost function, which the user can use if there is a need for additional defrosting of the evaporator due to the difficult operating conditions of the device. The device behaves in the same way in the case of both manual and automatic defrosting.

6.2 CAREL antifreeze thermostat: Table of signals and alarms:

If an alarm occurs, the controller displays the corresponding alarm code on the screen flashing alternately with the current temperature value. If the controller features an audible signal, this signal is activated as well. If the controller is equipped with an AUX output, it is activated, too.

All alarms reset automatically (they turn off when the cause of the alarm disappears), except for the CHt alarm (dirty condenser alarm), which must be cleared manually (turn off the controller with the UP button or disconnect the power supply.

Press the SET button to silence the audible alarm; the alarm code and the alarm relay remain on until the cause of the alarm disappears. Below are the alarm codes with descriptions.

Alarm code	Audible signal and alarm relay	LED	Alarm description	Reset
E0	active	ON	Error: sensor 1 - control	Auto
E1	Inactive	ON	Error: sensor 2 - control	Auto
E2	Inactive	ON	Error: sensor 3 - condenser/product	Auto
IA	Active	ON	External alarm	Auto
dOr	Active	ON	Open door alarm	Auto
LO	Active	ON	Low-temperature alarm	Auto
HI	Active	ON	High-temperature alarm	Auto
EE	Inactive	ON	Device alarm	Impossible
EF	Inactive	ON	Operating parameter error	Auto
Ed	Inactive	ON	Defrosting terminated due to timeout	Turns off on the next defrosting
dF	Inactive	OFF	Defrosting in progress	Auto
CHt	Inactive	ON	Dirty condenser alarm	MANUAL
EtC	Inactive	ON	Clock alarm	Time setting

Laboratory/pharmaceutical devices can be equipped with temperature loggers. These loggers can record and archive current temperature values. Instruction manuals for temperature loggers are attached as separate appendices of the documentation supplied with the device. Installation of temperature loggers is optional.

Refrigerated laboratory devices are also equipped with an antifreeze thermostat. This thermostat prevents the temperature in the storage compartment from dropping below zero in case of failure of the main control system.

If the temperature inside the device becomes too low, the thermostat temporarily shuts down the compressor to prevent the storage compartment from reaching sub- zero temperatures. This is indicated by the activation of the warning light and a beep. The device resumes operation when the temperature returns to the permissible range.

The audible signal can be turned off by pressing any button on the antifreeze thermostat. This thermostat is located in the cooling unit compartment.

It is strictly forbidden to:

- change the temperature setpoint in the antifreeze thermostat.

This function is completely separate from the controller function and will turn off the compressor to protect the products stored in the device, regardless of the main controller's settings.

Note that the main controller may indicate that the compressor is running, even if it has been turned off by the antifreeze thermostat. Please check the temperature settings of the controller if this is the case.

The refrigeration device must not be set to a temperature beyond its rated range, as this may cause the thermostat to trigger continuously, leading to temperature instability inside the device.

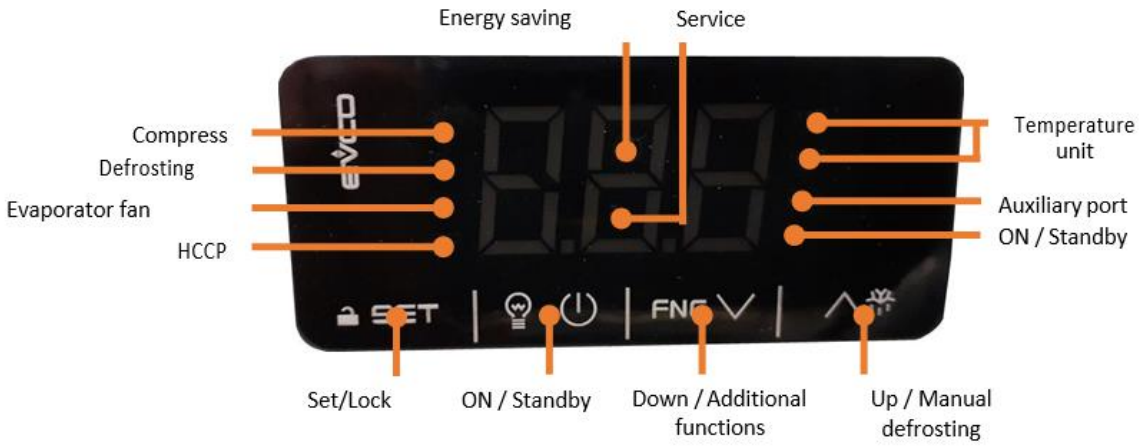
Additional high-temperature alarm
An additional high-temperature alarm is provided to further protect the products stored in the device from excessive heat. This function uses the thermostat that acts as an antifreeze thermostat.

Additional high-temperature alarm — signalled acoustically and visually. The alarm is activated when the temperature exceeds +7₀C.
Once the temperature returns to the permissible range, the alarm will turn off automatically.

The alarm delay is 1 min.

When the device is powered on, this alarm will activate after 1 min. Once the cabinet cools down to the set temperature after startup, the alarm will turn off automatically.
The audible signal can be turned off by pressing any button on the antifreeze thermostat.
This thermostat is located in the cooling unit compartment.

6.3 EVCO controller user manual



Controller display functions and operation

The electronic controller is pre-programmed by the manufacturer. Modifications may only be carried out by authorised personnel. In the event of a power failure or device shutdown, the set parameters are retained.

Display indications

LED	On	Off	Flashing
	Compressor active		Compressor protection in progress Change of settings in progress
	Defrosting on		Defrosting delay in progress Draining on
	Evaporator fan on	Evaporator fan off	- Evaporator fan stopped/activation delay on
HACCP	HACCP - EVlink memory alarm		
	Energy saving active		
	Maintenance or repair required		Settings in progress Access to additional functions EVconnect APP mode on
°C/°F	Temperature unit indication		- Temperature too low/too high
AUX	Auxiliary port on	Auxiliary port off	Auxiliary port enabled via digital input Auxiliary port delay present
	Device on	Device off	Turning on/turning off

Turning the device on and off

⏻ - Press and hold the ON/Standby button for 4 sec. If the device is on, the display shows the temperature value or an alarm code; see the relevant item under ALARMS.

After 30 sec. without using the buttons, "Loc" will be shown on the display, and the buttons will be automatically locked.

Unlocking the buttons

Press and hold any button for 1 sec.: the display will then show "UnL".

Changes in temperature setting (Setpoint)

Displaying and changing the temperature setpoint Make sure that the buttons are unlocked.

1.	SET	Press the SET button.
2.	FNC ∨ ∧	Start changing the setpoint within 15 sec. Set the desired temperature inside the setpoint range.
3.	SET	Press the SET button or do not perform any action for 15 sec.

Defrosting

All devices have fully automatic defrost control. Parameters for defrosting intervals, defrosting times, etc. have been factory-set to optimal values. These parameters may be changed only in exceptional cases by authorised refrigeration companies. Parameter lists can be provided by the manufacturer if necessary.

During the defrosting phase, the controller's display will show a special symbol indicating the defrosting phase, which will disappear when the phase is over: Condensate evaporation in all devices is carried out automatically using hot gas.

Initiating manual defrosting
Make sure the keypad is not locked and no programming procedure is enabled.

1.		Press and hold the up button for 4 sec.

Alarms

Code	Meaning
Pr1	Temperature sensor alarm
Pr2	Evaporator sensor alarm
Pr3	Auxiliary sensor alarm
rtc	Time setting error
AL	Low-temperature alarm
AH	High-temperature alarm
id	Open door alarm
PF	Power failure alarm
COH	High condenser temperature warning
CSd	High condenser temperature alarm
IA	Auxiliary connector alarm
Cth	Compressor thermal protection alarm
th	General thermal protection alarm
dFd	Defrosting timeout alarm

6.3.1 Temperature display

The indicators are located on the front of the device.
Devices with two cooling units are equipped with duplicate indicator systems, main switches and (optionally, buffer power supplies).

The temperature display indicates the current air temperature in the compartment.

6.3.2 Device on indicator

The device on indicator shows whether the device is active.

Meaning

No power. The device is off.

Power supply available. The device is on.

6.3.3 Cooling or freezing operation indicator

This indicator shows the status of the cooling or freezing operation at the given moment. With the device on and the operation indicator steadily illuminated, it has the following meaning:

Status	Meaning

On Cooling active, fan off; cooling is controlled by temperature control.

On Cooling inactive, fan on; cooling is controlled by temperature control.

On Cooling ctive, fan on; cooling is controlled by temperature control.

6.3.4 Alarm states

Open door or drawer alarm — signalled visually and acoustically when the door remains open for longer than the time set in the service parameter "A9". Cleared by closing the door.

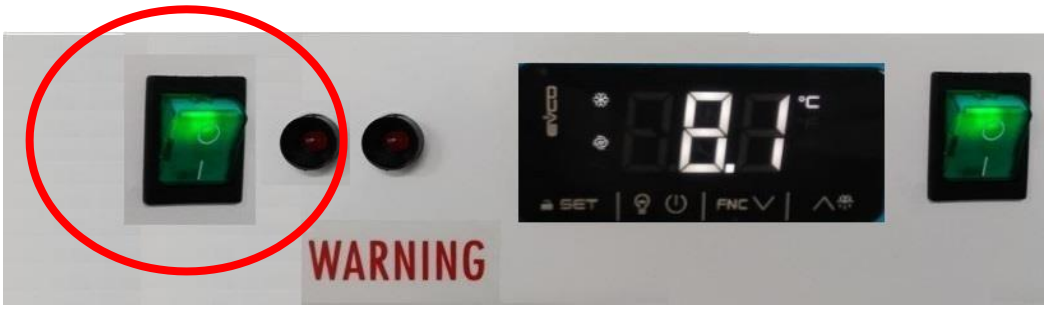
Low-temperature alarm — signalled visually and acoustically; activated when the temperature measured by sensor T1 is lower than the temperature setpoint in service parameter "A1" for the time "A7". Cleared automatically when the temperature measured by sensor T1 is higher than the temperature setpoint in service parameter "A1"

High-temperature alarm — signalled visually and acoustically; activated when the temperature measured by sensor T1 is higher than the temperature setpoint in service parameter "A4" for the time "A7". Cleared automatically when the temperature measured by sensor T1 is lower than the temperature setpoint in service parameter "A4"

Measurement sensor
failure alarm — signalled acoustically and visually by showing Pr1 or Pr2 or Pr3 on the display; triggered when sensor T1 or T2 or T3 is damaged or disconnected. Cleared by restarting the controller once the fault has been fixed.

Alarm:
Defrosting terminated due to timeout. Activated when defrosting is terminated once the time defined in service parameter "d3" has elapsed. Cleared upon starting the next defrosting cycle.

Power failure alarm (optional) — signalled acoustically and visually by a buzzer inside the device and a red light located on the front insert); activated during a power failure. Cleared automatically when the power is restored. The power failure alarm may be cleared manually using the switch located next to the antifreeze thermostat



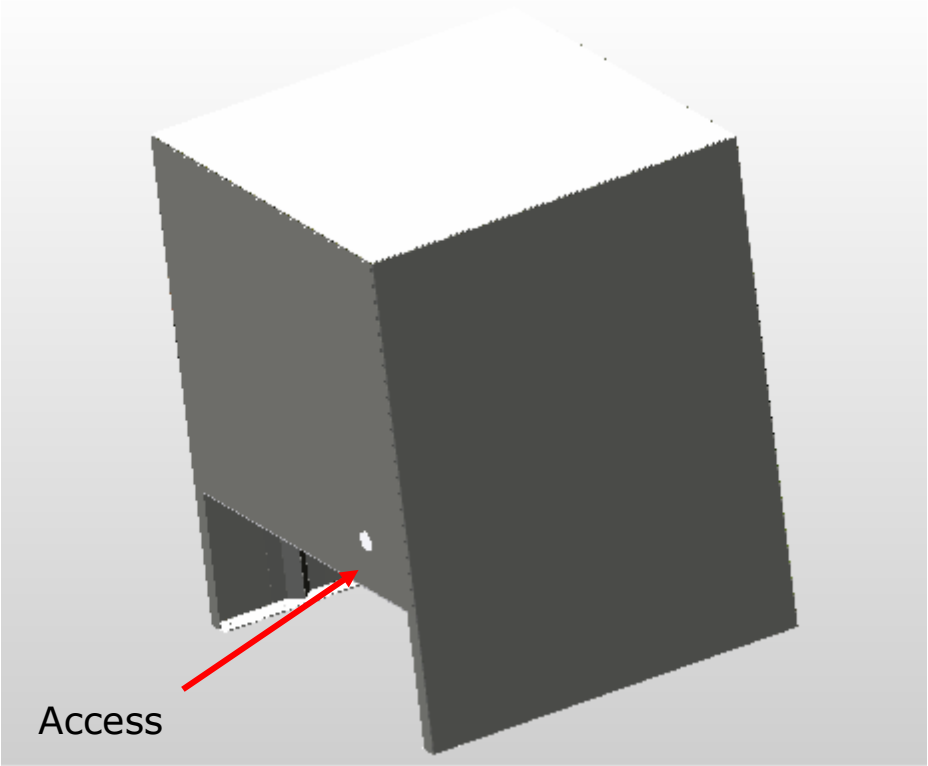
6.4 Acces hole

Access hole — used to insert temperature sensors inside the device for validation (to verify and provide evidence that the product meets the user's needs and requirements) or to insert temperature logger sensors to enable continuous monitoring of the device's temperature.

Depending on the device, the access hole may be located in the following places:

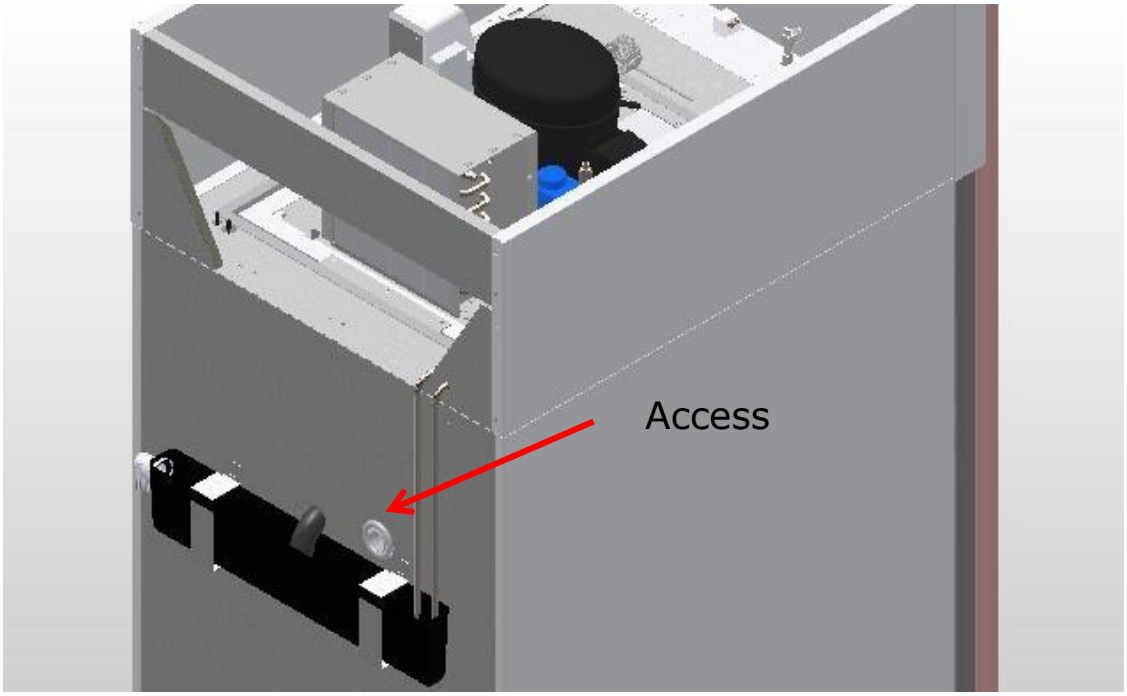
1. 100-litre and 250-litre cabinets:

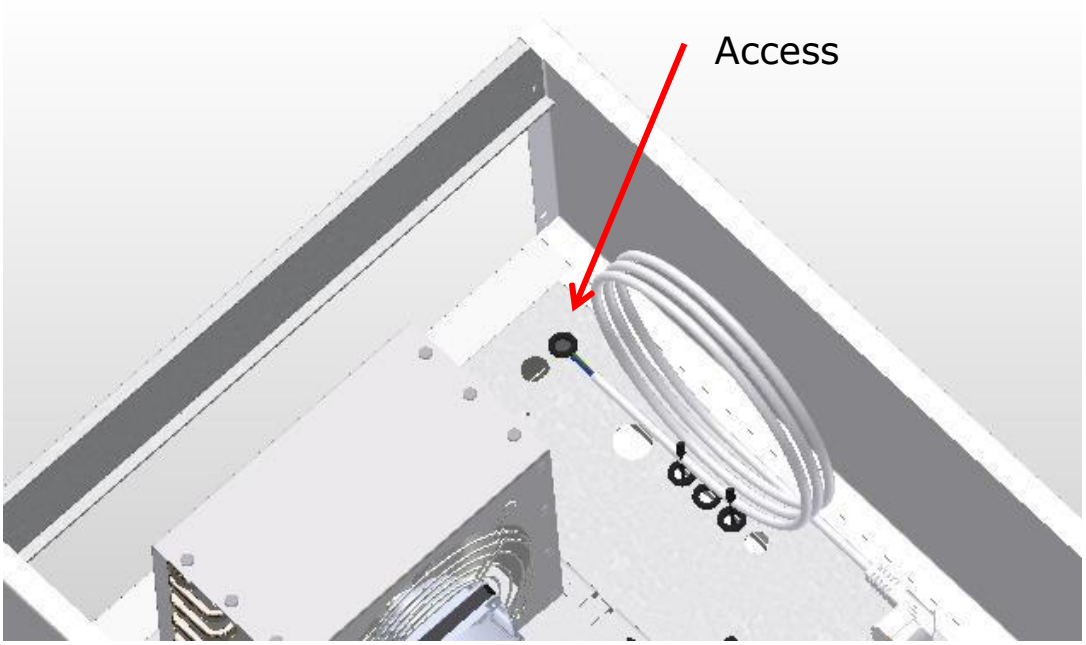
A blinded access hole with a diameter of 30 mm is located on the back of the device (on the rear wall).



2. 300-litre and 500-litre cabinets:

A blinded access hole with a diameter of 30 mm is located on the back of the device (on the rear wall). Apart from the hole on the rear wall, the cabinet is equipped with a second validation hole measuring 12 mm in diameter, which is located on its roof.





3. 700-litre and 1400-litre cabinets:

A blinded access hole with a diameter of Access hole locations result from technical capabilities and customer feedback. Apart from the standard access hole locations listed above, the manufacturer can prepare access holes in different places on the device according to customer requirements.

6.5 Normal operating mode

During normal operation, the operation lights are steadily illuminated. The temperature display indicates the current air temperature in the compartment.

CAUTION

The alarm indicator on the display must not be active during normal operation.
The door is equipped with a special automatic closing mechanism, preventing users from unintentionally leaving the door open by pressing it against the device's body. To put any material inside the device, open the door by pulling the handle.

With the door open, the fan is turned off. If the door remains open for more than 1 minute, an audible alarm will sound to remind users that the door is open, and an alarm LED will light up on the display along with the word "id". Once the door has been closed, the audible alarm will stop, the operation indicator will be steadily illuminated, and the fan will be turned back on.

WARNING

The personnel operating the device is responsible for the proper placement of products inside its compartment. In doing so, the maximum permissible load of shelves and drawers must be observed.

CLEANING AND MAINTENANCE

Before cleaning, maintaining or removing drawers (shelves), the device must be unplugged by turning off the mains switch and removing the power cord plug from the socket.

- Never soak or submerge the device in water,
- Never clean the device when it is unstable, i.e. the front castors must be locked,
- Never use organic solvents (e.g. paint thinner, benzene, etc.),
- Never clean the device near a stream of running water.

7.1 Cleaning the device's interior and exterior

Laboratory/pharmaceutical refrigeration, freezer and refrigeration/freezer devices must be cleaned regularly.

Before carrying out any maintenance or cleaning operations, turn off the device using the main switch and remove the plug from the power socket!

All repairs and maintenance work should be carried out by authorised personnel. Always ensure that no unaware person can turn on the device accidentally.

For disinfection, use a slightly damp cloth and any surface cleaner.
Do not apply the disinfectant directly to the device — apply it to the cloth instead. Clean the device's interior using a damp sponge soaked in warm water and/or neutral detergent and then wipe it with a soft cloth. Ethanol-based formulations can be used to remove oil or grease.

Never use preparations containing chlorine and its compounds, strong alkalis, acids, bleach or table salt (NaCl) to clean stainless steel surfaces.
Never use powders or other abrasive agents, silver cleaners, wire cleaners, cleaning wool, sharp cleaners or carbon steel brushes.
At set intervals, clean the device's condenser using a brush, vacuum cleaner or air compressor.

NOTE
Leave the door open if the device is out of operation. Wash and disinfect the device before using it again.

WARNING
Under no circumstances may cleaning agents or cloths be used directly in the air duct!

With regard to cleaning and disinfection of the device, please refer to the hygiene regulations applicable to the site where the device is operated.

MAINTENANCE AND OPERATIONAL SAFETY CHECKS

Temperature control of laboratory/pharmaceutical refrigeration, freezer and refrigeration/freezer devices depends on daily operation and tolerances of electronic components.

To guarantee long-term temperature control within the declared tolerances, an annual operational safety check by qualified personnel is required. It is recommended that an annual electrical safety check be carried out as part of the operational safety check. Fees apply for the annual safety check of the device.

8.1 Conducting operational safety checks

To carry out an operational safety check, remove all materials from the device and store them according to the recommendations of their manufacturers. The OHS inspection consists in measuring the temperature in the top drawer or on the top shelf using a reference thermometer. The OHS inspection should be carried out at an ambient temperature of 22 °C +/- 1 °C. Turn on the device as described in Chapter 5. Wait for the display to indicate the temperature setpoint depending on the type and purpose of the device.

Use a standard thermometer to measure the temperature in the top drawer (while closed) or on the top shelf. The thermometer should be placed in the middle of the drawer's bottom. Make sure that the head of the thermometer stays in the air without touching the walls or bottom of the drawer or shelf, insofar as this is possible. Close the door and wait a while until the temperature reading on the thermometer stops dropping.

Afterwards, open the drawer or door for a while and read the temperature.
If using electronic reference thermometers, it is possible to insert only the sensor into the drawer or shelf; the display should be placed outside the device. Consider the thermometer manufacturer's data on ambient conditions whenever using a reference thermometer.

If the temperature values shown by the thermometer lie outside the specified tolerance, i.e. temp. setpoint +/- 1°C, the system should be recalibrated. At the same time, the value shown must correspond to that indicated by the thermostat with an accuracy of +/- 1°C.

8.2 Maintenance

Apart from cleaning, operational safety checks and electrical safety checks, the device must undergo the following maintenance:

- vacuum the front surface of the condenser every two months, and do this more often if the area is dustier.

Before cleaning, unplug the device from the power socket.

PRACTICAL ADVISE

9.1 Practical advise

If your refrigeration, freezer or refrigeration/freezer appliance is not working properly, perform the following checks before calling a service technician:

- The device does not work.

  - Is the power cord plugged into a power socket?
  - Is the socket live (with no blown fuses or residual protection tripped)?

- The **temperature in the device has risen sharply** (signalled by an alarm on the display of the thermoregulator, logger).

  - Has the device's door been opened frequently in recent times?
  - Is the device overfilled with material or does the arrangement of the material impede the air circulation inside the device?
  - Is the device's distance from the wall as stated in the Instructions for Use?
  - Has the device's condenser been properly cleaned?
  - Are the condenser and radiator fans running?

- The refrigeration device works loudly.

  - Is the device level?
  - Does the material inside the device not vibrate, and if so, is it placed properly?

- Excessive ice buildup occurs in the device.

  - Are the condensate drain lines unobstructed?
  - Wasn't the door open for a long time?
  - Do the door seals properly adhere to the body?

LIABILITIES AND WARRANTIES

10. Liabilities and warranties

Apollo Service Handelsonderneming B.V. markets laboratory/pharmaceutical refrigeration and freezer devices that meet safety requirements and do not endanger the safety of people, animals and property, provided that they are properly installed, maintained, kept in proper technical condition and used as intended.

The manufacturer shall affix labels on the devices to confirm their compliance with the relevant legal provisions. CE

The manufacturer shall guarantee the proper operation of the devices. Detailed warranty conditions are specified in the warranty card.

The following are not covered by the warranty:

- damage during transport (organised by the customer), loading and unloading (claims in such cases must be asserted with the company transporting the device),
- damage or malfunctions caused by incorrect and non-compliant connection and start-up (if the connection and start-up were carried out by the customer),
- damage to electrical equipment including the motor caused by a voltage drop,
- damage caused by improper operation or failure to follow the Instructions for Use,
- fuses,
- glass,
- light bulbs,
- fluorescent lamps,
- contactor and solenoid valve coils,
- electric cells like batteries and rechargeable batteries,
- capacitors,
- fluorescent lamp starters,
- fluorescent lamp electronic ballasts,
- LED lighting,
- LED power supplies,
- transformers.

Repairs to devices during the warranty period:

- **must be carried out by the manufacturer's authorised service; will void the warranty if carried out by unauthorised persons;**
- Please file repair requests directly to Apollo Service Handelsonderneming B.V. and include the description of the problem, type of device, factory number and date of purchase in each request.

To ensure the smooth and safe operation of the device:

- **use only authorised service centres,**
- **use only original spare parts**.

TECHNICAL DATA

11. These Instructions for Use include detailed technical specifications of the relevant device model in the form of a data sheet. Below is a table with basic technical data:

	Device type				
	SLC 55 / SLC 55 GLASS	***SLC 100 / SLC 100 GLASS***	***SLC 500 / SLC 500 GLASS***	***SLC 700 / SLC 700 GLASS***	***SLC 1400 / SLC 1400 GLASS***
External dimensions [mm]	480x525x790	650x635x855	640x875x1995	740x875x1995	1480x875x1995
Permissible shelf load [kg]	15	15	30	30	30
Climate class	4	4	4	4	4
Temperature range [0C]	-2C … +10C	-2C … +10C	-2C … +10C	-2C … +10C	-2C … +10C
Device weight [kg]	80	90	105	125	180
Defrosting	Compressor off + fan off	Compressor off + fan off	Compressor off + fan off	Compressor off + fan off	Compressor off + fan off
Environment	+30C/55% HR	+30C/55% HR	+30C/55% HR	+30C/55% HR	+30C/55% HR
Refrigerant	R600a	R600a	R290	R290	R290
Cooling unit type	internal	internal	internal	internal	internal
Rated light power [W]	180W	230W	500W	500W	680W
Energy consumption [kWh/24h]	3.1	3.9	8.4	8.4	11.3
Power supply [V/Hz]	230V / 50Hz	230V / 50Hz	230V / 50Hz	230V / 50Hz	230V / 50Hz

DESCRIPTION OF DESIGN

12. Acid-resistant OH18N9- or 1H18N9T-grade sheet metal is used for the body and inner compartment of the device, which, according to the standards, can be used for direct contact with food. On request, we make the outer housing from powder-coated steel sheets. Device bodies have polyurethane insulation. Freezer cabinets have solid doors; display cases feature glazed doors made of tempered glass.

In the case of freezer display cases, the windows are electrically heated. An electronic thermostat is used for control and (optionally) other electronic devices are used to monitor and log device operation.

If the device is fitted with additional logging or control devices required by the user, their user manuals are attached as a separate appendix.

Laboratory/pharmaceutical refrigeration, freezer and refrigeration/freezer devices are electrical devices and must not be disposed of with other waste at the end of their life cycle. Please contact the manufacturer or distributor for disposal.