

# Short user's manual

VWR® ULT Freezer

264/352/528 Eco Premium

EU cat. No. 471-1304 / 471-1252 / 471-1253

NA cat. No. 76683-448 / 76514-174 / 76514-176  
76683-450 / 76533-504 / 76533-506



## Important note

This Short user's manual is only valid in conjunction with the operating manual. You can download it under [www.vwr.com](http://www.vwr.com) or contact your local VWR office.










The initial commissioning and usage of the VWR® ULT Freezer (during the entire product life cycle) is only permitted with the operating manual. Read the operating manual completely before usage.


This Short user's manual is not a replacement for the operating manual, as it only contains selected information.



## Safety instructions

The following represents the hazards with the highest level of danger for people. Safety information with lower risk levels, and important detailed information about safety, can be found in the operating manual. It is very important that the operating manual is read completely before initial commissioning and usage.

The VWR® ULT Freezer should only be operated by laboratory personnel especially trained for this purpose and familiar with all precautionary measures required for working in a laboratory. Observe the national regulations on minimum age of laboratory personnel. To avoid injuries and damage observe the safety instructions of the operating manual.

	<div data-bbox="804 564 1062 622">  <b>DANGER</b> </div> <p><b>Danger of explosion due to combustible dusts or explosive mixtures in the vicinity of the chamber or inside the chamber.</b></p> <p><b>Serious injury or death from burns and / or explosion pressure.</b></p> <ul style="list-style-type: none"> <li>Ø Do NOT operate the chamber in potentially explosive areas.</li> <li>Ø KEEP explosive dust or air-solvent mixtures AWAY from the chamber.</li> <li>Ø Do NOT introduce any substance combustible or explosive at working temperature into the chamber, in particular no energy sources such as batteries or lithium-ion batteries.</li> <li>Ø NO explosive dust or air-solvent mixture in the inner chamber.</li> </ul>
  	<div data-bbox="804 990 1062 1048">  <b>DANGER</b> </div> <p><b>Electrical hazard during live maintenance work.</b></p> <p><b>Deadly electric shock.</b></p> <ul style="list-style-type: none"> <li>Ø The chamber must NOT become wet during operation or maintenance.</li> <li>Ø Do NOT remove the rear panel of the chamber.</li> <li>➤ Disconnect the chamber before cleaning or conducting maintenance work. Turn off the main power switch and pull the power plug.</li> <li>➤ Ensure all maintenance work is conducted by licensed electricians or experts authorized by the manufacturer.</li> </ul>
 	<div data-bbox="804 1442 1082 1500">  <b>WARNING</b> </div> <p><b>Danger of intoxication and infection through contamination of the chamber with toxic, infectious or radioactive substances.</b></p> <p><b>Damages to health.</b></p> <ul style="list-style-type: none"> <li>➤ Protect the interior of the chamber against contamination by toxic, infectious or radioactive substances.</li> <li>➤ Take appropriate measures when bringing in or taking out toxic, infectious or radioactive substances.</li> <li>Ø Do NOT introduce any substance which could lead to release of toxic gases</li> </ul>

	<b>! CAUTION</b>
	<p><b>Danger of injury by freezing on when touching cold chamber parts during or after operation. Local frostbite.</b></p> <ul style="list-style-type: none"> <li>Ø Do NOT directly touch the inner surfaces or the charging material during operation.</li> <li>Ø AVOID skin contact with the inner surfaces and accessory equipment.</li> <li>➤ Wear protective gloves when opening the inner doors and during manipulation.</li> </ul>

 	<b>! WARNING</b>
	<p><b>Danger of injury and damages by the chamber tipping over or breakaway of the protruding lower housing cover.</b></p> <p><b>Injuries and damage to the chamber and the charging material</b></p> <ul style="list-style-type: none"> <li>Ø Do NOT climb on the lower housing cover.</li> <li>Ø Do NOT load the lower housing cover with heavy objects while the chamber door is open.</li> </ul>

## Intended use

Ultra-low temperature freezers “VWR® ULT Freezer” are technical equipment and intended solely for use at work. They are suitable are designed for safe storage of varied materials at temperatures up to -86 °C / -122.8 °F, especially for long-term storage of biological, medical, and chemical samples at constant low temperature. They are suitable for the domains Pharmacy, Medicine, Life Sciences, plastic industry, electronic components, food etc. The freezers do not dispose of any measures of explosion protection

The charging material shall not contain any corrosive ingredients that may damage the machine components made of stainless steel. Such ingredients include in particular acids and halides. Any corrosive damage caused by such ingredients is excluded from liability by VWR. None of the components of the charging material must be able to form an explosive mixture with air. Any component of the charging material must NOT be able to release toxic gases.

**Other applications are NOT approved.**

Details can be found in the operating manual in chapter 2.3. Any use of the chambers that does not comply with the requirements specified in the Operating Manual shall be considered improper use. Following the instructions in the operating manual and conducting regular maintenance work are part of the intended use.

You may not make any modifications to the device yourself, as these may limit proper usage.

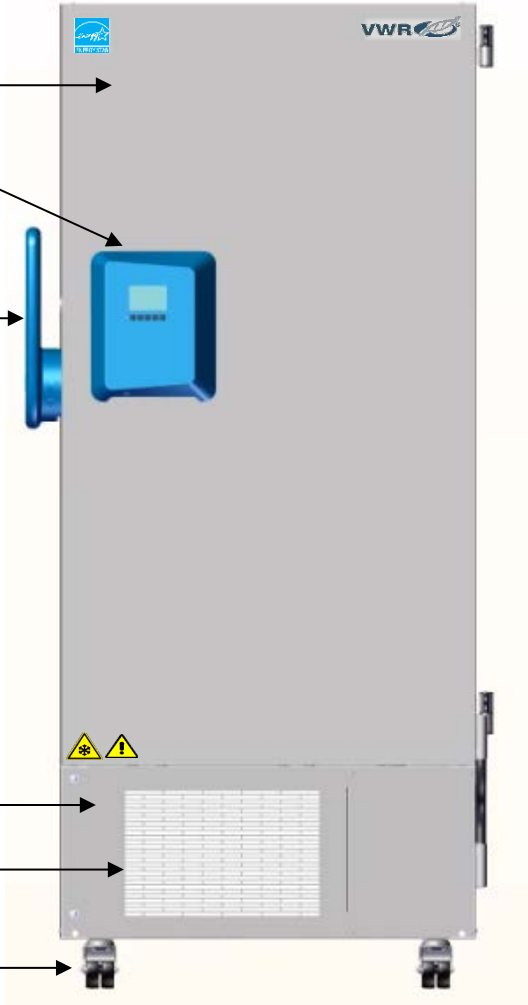
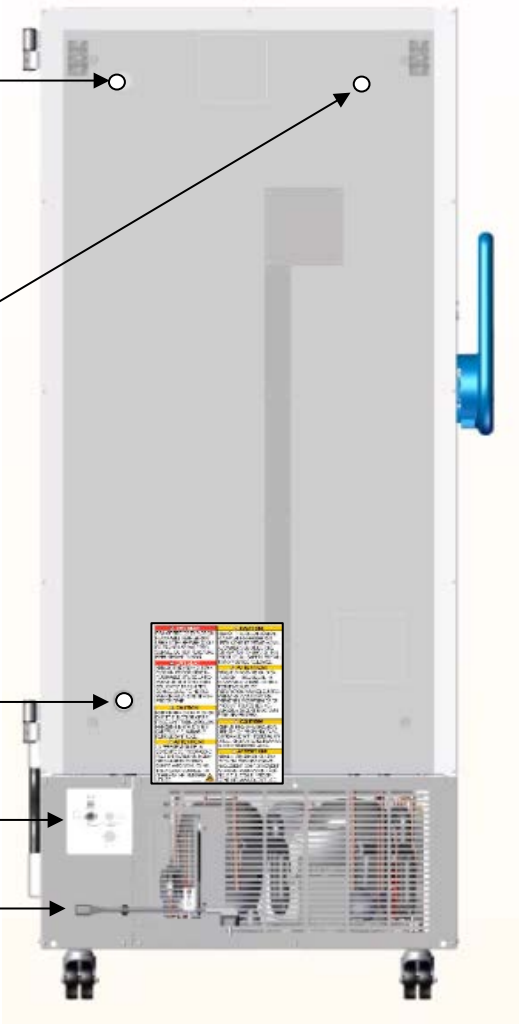


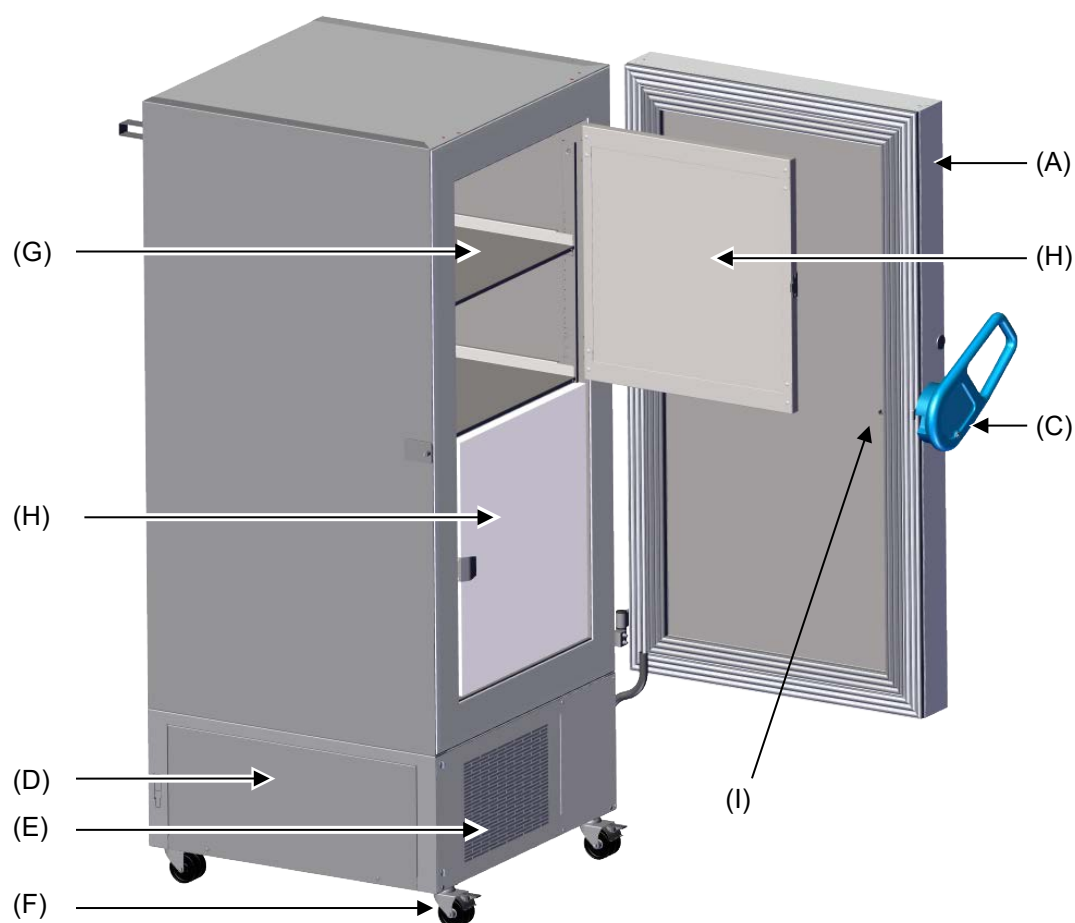
The chamber must only be operated using only original accessories or accessories / components from third-party suppliers authorized by the manufacturer. The user is responsible for any risk arising from using unauthorized accessories



VWR is responsible for the safety features of the chamber only, provided skilled electricians or qualified personnel authorized by the manufacturer perform all maintenance and repair, and if components relating to chamber safety are replaced in the event of failure with original spare parts. The user is responsible for any risks arising from using unauthorized accessories/components.

## Components

 <p>(A) →</p> <p>(B) →</p> <p>(C) →</p> <p>(D) →</p> <p>(E) →</p> <p>(F) →</p>	 <p>(L1) →</p> <p>(L2) →</p> <p>(L3) →</p> <p>(M) →</p> <p>(N) →</p>
Front view	Rear view
<p>(A) Outer door</p> <p>(B) Controller housing</p> <p>(C) Door handle</p> <p>(D) Compressor housing</p> <p>(E) Air filter flap for checking and cleaning / replacing the filter</p> <p>(F) Castors (front castors lockable by breaks)</p>	<p>(L1) 28 mm access port, e.g., for cable of a supplementary measuring device</p> <p>(L2) 28 mm access port, e.g., for cable of a supplementary measuring device</p> <p>(L3) 28 mm access port, e.g., for cable of a supplementary measuring device</p> <p>(M) Connection panel with Ethernet interface</p> <p>(N) Connecting socket for IEC connector plug with strain relief</p>

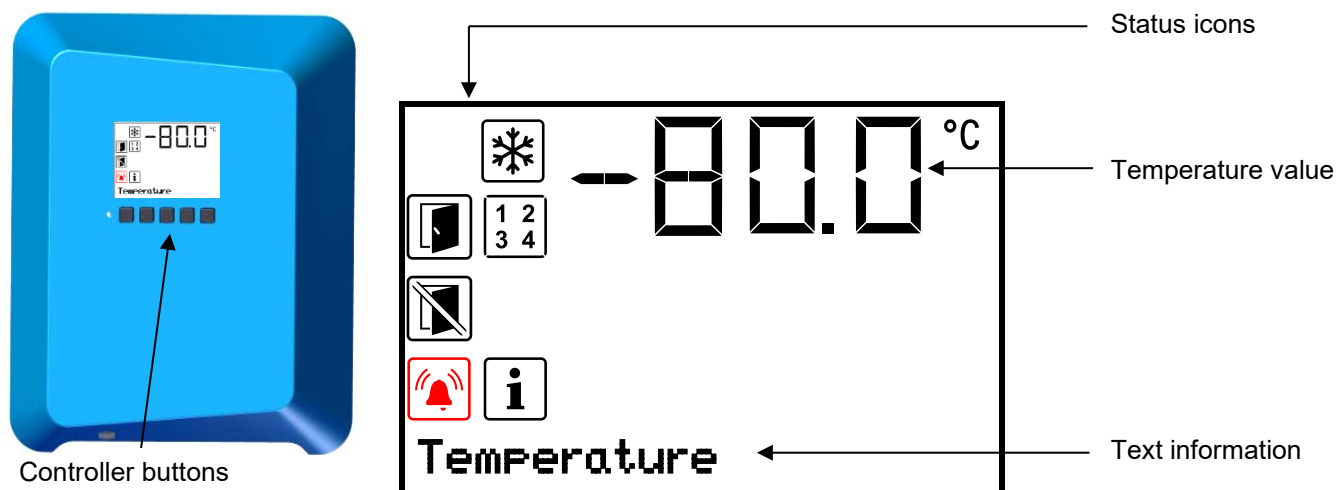


### View with open door




- (A) Outer door
- (B) Inner compartment door
- (C) Door handle
- (D) Compressor housing
- (E) Air filter flap for checking and cleaning / replacing the filter
- (F) Castors (front castors lockable by breaks)
- (G) Compartment with variable shelf
- (H) Compartment door
- (I) Pressure compensation valve (inside of the door behind the door lock and controller housing)




## Controller overview

### Normal display of the chamber controller (sample values)








### Status icons in the controller display

Icon	Signification
	Door open
	Do not open the door
	Information

Icon	Signification
	Collective alarm
	Refrigeration active
	Display of activated special controller functions. 3 = Service setpoint active

### Functional controller keys

Icon	Signification	Function
	<b>Arrow-up button</b>	<ul style="list-style-type: none"> <li>Navigate between menus, submenus, other functions</li> <li>In the setting menu: change setting, increase value</li> </ul>
	<b>Arrow-down button</b>	<ul style="list-style-type: none"> <li>Navigate between menus, submenus, other functions</li> <li>In the setting menu: change setting, decrease value</li> </ul>
	<b>OK button</b>	<ul style="list-style-type: none"> <li>Select menu, submenu, function</li> <li>In the setting menu: Confirm entry</li> </ul>
	<b>Back button</b>	Back to previous menu level
	<b>Standby button</b>	no function

## Lifting and transporting the chamber

### Inside a building on a smooth floor: Use castors

- Unlock the front castors before moving the freezer
- Angle of inclination less than 5°: Wait 10 minutes before turning on the freezer again
- Angle of inclination: 5° to 10° (maximum!): Wait at least 8 hours before turning on the freezer again

### Outside a building: Use technical equipment

- Do NOT lift or transport the chamber using the door, the door handle, the controller housing or the lower housing.
- If possible, avoid transporting the chamber horizontally. It may be transported lying down ONLY on the hinge side or on its back, but must then stand upright for at least 24 hours before turning on
- Lift the chamber using technical devices (fork lifter) and place it on the transport pallet. Set the fork lifter laterally or from the rear in the middle of the chamber. Make sure to place all the lateral supports of the chamber on the forks (check: the fork protrudes at the opposite chamber side).
- Transport chambers ONLY with the original transport pallet. Set the fork lifter only to the pallet. Without the pallet the chamber is in imminent danger of overturning
- Wear suitable shoes (safety shoes)..
- Transport the chamber only in its original packaging.
- Secure the chamber with transport straps for transport.

## Requirements for the location of installation

- Installation inside a building on a non-flammable, flat and even surface, free from vibration
- Use support feet for VWR® ULT Freezer 264 (operating manual, chapter 5.4)
- Do NOT set up chambers in non-ventilated recesses. Ensure sufficient ventilation for dispersal of the heat.
- Permissible ambient temperature range during operation: +18 °C up to +32 °C / 89.6 °F.
- Permissible ambient humidity: 70 % r.h. max., non-condensing
- Installation height: max. 2000 m / 6562 ft. above sea level.
- Do not install or operate the chamber in potentially explosive areas.
- Ensure a distance of at least 100 mm / 3.94 in to the ventilation openings on the freezer's front and rear.
- Power supply fluctuations must not exceed +/- 10 % of the nominal voltage

## Electrical connection data and installation

- The chambers come with an IEC connector plug. Cable length: 2000 mm / 78.7 in. Only use original connection cables according to the specification given in the Operating Manual.
- Pollution degree (acc. to IEC 61010-1): 2. Over-voltage category (acc. to IEC 61010-1): II. Housing protection (acc. to 60529): IP 20
- The domestic socket must also provide a protective conductor. Make sure that the connection of the protective conductor of the domestic installations to the chamber's protective conductor meets the latest technology. The protective conductors of the socket and plug must be compatible!
- When connecting, please observe the regulations specified by the local electricity supply company as well as the local or national electrical regulations. We recommend the use of a residual current circuit breaker.
- Prior to connection and start-up, check the power supply voltage. Compare the values to the specified data located on the chamber's type plate.
- To completely separate the chamber from the power supply, you must disconnect the power plug. Install the chamber in a way that the power plug is easily accessible and can be easily pulled in case of danger.

Chamber size (referring to the max. quantity of 2" boxes)		264	352	528
<b>VWR® ULT Freezer (230 V)</b>				
Nominal voltage (+/-10%) at 50 Hz power frequency	V	230	230	230
Current type		1N~	1N~	1N~
Nominal power	kW	1.6	1.6	1.6
Nominal current	A	7.0	7.0	7.0
Power plug		Grounded plug EU, UK, CH		
Internal over-current release category C, 2 poles	A	10	10	10
<b>VWR® ULT Freezer, UL model (120 V)</b>				
Nominal voltage (+/- 10%) at 60 Hz power frequency	V	115	115	115
Current type		1N~	1N~	1N~
Nominal power	kW	1.4	1.4	1.4
Nominal current	A	11.7	11.7	11.7
Power plug	NEMA	5-15 P	5-15 P	5-15 P
Internal over-current release category C, 2 poles	A	15	15	15
<b>VWR® ULT Freezer, UL model (208-230 V)</b>				
Nominal voltage (+/- 10%) at 60 Hz power frequency	V	208-230	208-230	208-230
Current type		2~	2~	2~
Nominal power	kW	1.6	1.6	1.6
Nominal current	A	7.7	7.7	7.7
Power plug	NEMA	6-15 P	6-15 P	6-15 P
Internal over-current release category C, 2 poles	A	10	10	10

## Placing samples in storage in the freezer

- Load the freezer only after equilibration of temperature
- After turning on the chamber, wait approx. 8 hours, before placing any samples in the freezer
- Only insert samples into the freezer when it has reached its stable operating state.
- Do NOT directly touch the inner surfaces or the charging material during operation.
- AVOID skin contact with the inner surfaces and accessory equipment.
- Wear protective gloves when opening the inner doors and during manipulation
- After the outer door has been closed, it can only be opened again after a waiting time

### Temperature equilibrating time to -80 °C / -112 °F :

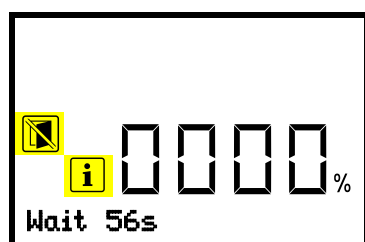
Approx. 6 hours (VWR® ULT Freezer 352) / approx. 7.5 hours (VWR® ULT Freezer 528).

### Waiting time after the outer door has been closed

Time displayed as a countdown.

"Information" icon is lit

"Do not open the door" icon flashes.



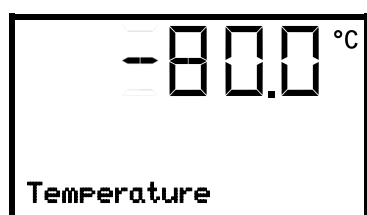
Normal display during the waiting time  
(example image)



## Preset factory parameters

- Temperature set point            -80 °C / -112 °F
- Safety controller mode            "Limit"
- Safety controller value           -50 °C / -58 °F
- Deviation from the temperature set-point causing tolerance range alarm    +/- 5 K
- Alarm delay time after opening the door    1 minute
- Alarm delay time after leaving the tolerance range    60 minutes
- Password for "User" authorization    0 (no locking)
- Password for "Admin" authorization    1

## Temperature setpoint entry



Normal Display (example image)



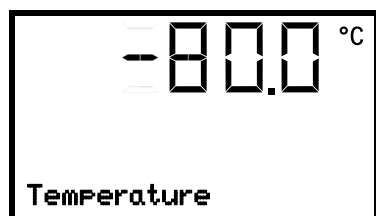
Change to **Setpoints** menu



Change to **Temperature** submenu



Enable setting



Enter the set-point.

Setting and control range: -50 °C / -58 °F up to -86 °C / -122.8 °F



Confirm the entry

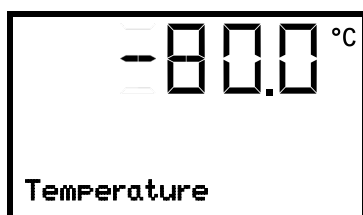


Go back to Normal Display

## Setting the safety controller

- Regularly check the settings of the safety controller mode and value.
- Set the safety controller value by approx. 15 °C above the desired temperature set-point.
- Check and/or adjust the safety controller following any change of the temperature set-point

## First step: Setting the safety controller mode



Normal Display (example image)



Change to **Setpoints** menu



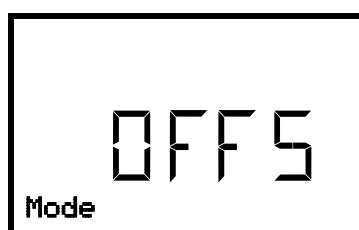
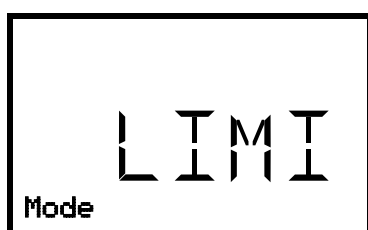
Change to **Safety controller** menu



Change to **Mode** menu



Enable setting



Select the mode LIMI (Limit) or OFFS (Offset)



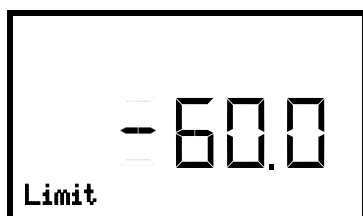
Confirm the entry



Proceed to next step

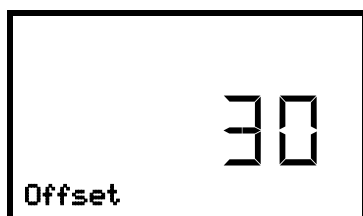
## Next step: Setting the safety controller value

Depending on the mode setting, one of the following setting menus will appear.



Enter the desired limit value. Setting range: -20 °C to -110 °C.  
(example image)

Or



Enter the desired offset value.  
(example image)



Confirm the entry



Go back to Normal Display

## Troubleshooting in the event of overtemperature alarm



Overtemperature alarm (example image)

- Check whether the outer door was open for a long time or is not closed properly.
- Check the setting of the safety controller. If necessary, adjust the relevant value.
- Check whether samples were inserted into the freezer that may release heat.
- Check the ambient conditions. Protect the freezer from direct sunlight. Ensure sufficient ventilation.
- If these points do not reveal the source of the fault, it may be that the chamber is faulty. Please contact Avantor Services.

## Cleaning and decontamination

With every cleaning method, always use adequate personal safety controls.

Clean the door handle, door hinges and the locking counterpart at least once a year.

	<div style="background-color: red; color: white; text-align: center; padding: 5px;"><b>! DANGER</b></div> <p><b>Electrical hazard by water entering the chamber.</b> <b>Deadly electric shock.</b></p> <ul style="list-style-type: none"> <li>Ø Do NOT spill water or cleaning agents over the inner and outer surfaces.</li> <li>Ø Do NOT put ANY cleaning aids (cloth or brush) into slots or openings on the chamber.</li> <li>➤ Before cleaning, turn off the chamber at the main power switch and disconnect the power plug.</li> <li>➤ Completely dry the chamber before turning it on again.</li> </ul>
	<div style="background-color: red; color: white; text-align: center; padding: 5px;"><b>! DANGER</b></div> <p><b>Risk of locking in a person.</b> <b>Death from suffocation or freezing.</b></p> <ul style="list-style-type: none"> <li>➤ Before closing doors, make sure that nobody is inside.</li> <li>➤ Pull the power plug before entering the interior (e.g. for cleaning purposes).</li> </ul>
	<div style="background-color: yellow; text-align: center; padding: 5px;"><b>! CAUTION</b></div> <p><b>Danger of chemical burns through contact with skin or ingestion of the neutral cleaning agent and through eye contact with the disinfectant spray</b> <b>Skin and eye damage.</b></p> <ul style="list-style-type: none"> <li>Ø Do not ingest the neutral cleaning agent. Keep it away from food and beverages.</li> <li>➤ Wear protective gloves (butyl or nitrile rubber, penetration time &gt;480 minutes) and sealed protective goggles.</li> <li>➤ Avoid skin contact with the neutral cleaning agent.</li> </ul>

- For cleaning, wipe the surfaces with a moistened towel or use cleaning agents and disinfectants.
- Do not use cleaning or decontamination agents that may cause a hazard due to reaction with components of the freezer or the loading material. If there is doubt regarding the suitability of cleaning products, please contact Avantor Services.
- For surface protection, perform cleaning as quickly as possible.
- After cleaning completely remove cleaning agents from the surfaces with a moistened towel. Allow the chamber to dry.
- Following use of disinfectants: allow the chamber to dry, and aerate it sufficiently.

### Suitable agents for cleaning

Exterior surfaces, door handle, controller housing with controller panel, interior (stainless steel) shelves, door gaskets	Standard commercial cleaning detergents free from acid or halides. Alcohol-based solutions. Recommended for cleaning: neutral cleaning agent
Instrument panel	Standard commercial cleaning detergents free from acid or halides. Recommended for cleaning: neutral cleaning agent
Zinc coated hinge parts rear chamber wall	Standard commercial cleaning detergents free from acid or halides. Do NOT use a neutral cleaning agent on zinc coated surfaces.

### Suitable agents for disinfection

Interior (stainless steel)	Standard commercial surface disinfectants free from acid or halides (not dripping). Alcohol based solutions.
Compartment doors	Standard commercial surface disinfectants free from acid or halides (not dripping). Alcohol based solutions max. 10%
Outer door gasket (PVC) and inner door gasket (silicon)	Alcohol based solutions

## Maintenance

The following work must be carried out regularly by the operating personnel to maintain the chamber function

### De-icing the upper area of the freezer and the interior doors.

- Regularly – e.g. every month – remove the frost on the doors. Use the supplied ice scraper (part of optional deicing kit).
- NEVER use tools with a sharp edge to remove the frost.
- If the door has not been opened for more than 5 days, de-ice the door gaskets and the inner opening of the pressure compensation valve.

### Defrosting the entire chamber

- Before defrosting, turn off the empty chamber and disconnect it from the power supply. Open the outer door and all inner doors.
- Place absorbent towels on the bottom of the inner chamber or mount the optional drain well, and allow the frost to melt. Wipe up the accumulated water with absorbent towels
- Let the interior of the freezer dry. Clean and decontaminate it and let it dry before connecting it to the power supply and turning it on

## Cleaning the condenser

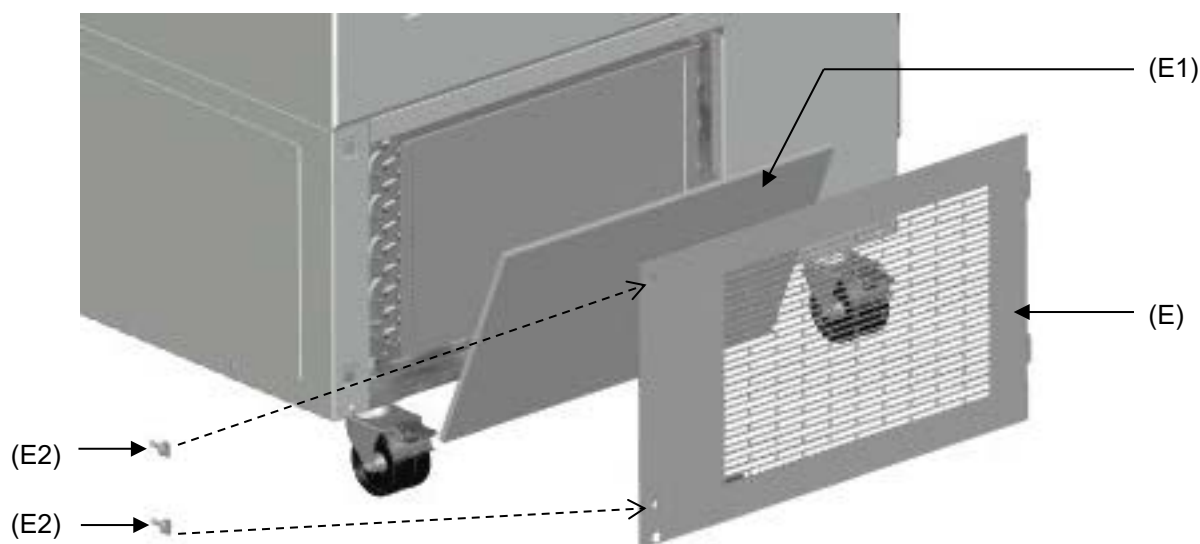
- Every 6 months remove by suction any visible dust on the condenser lamellas with a vacuum cleaner.
- If appropriate, blow through the lamellas with compressed air.

### With an increased amount of dust in the ambient air:

- Clean the condenser several times a year.
- Weekly check the condenser lamellas behind the air filter flap.
- If soiling is visible, turn off the chamber and remove the dust by suction from the condenser lamellas.

## Checking and cleaning / replacing the condenser air filter

- Check the condenser air filter visually for soiling every month and/or when the alarm message "Condenser temp." occurs.
- The filter is located behind the air filter flap in the lower housing cover. rinse the filter and use it again
- To access the condenser air filter (E1), unscrew the quick locking screws (E2) of the air filter flap (E) and remove the air filter flap.
- For reuse, wash the condenser air filter with water and let it dry. If necessary, replace the filter.
- Insert the condenser air filter and mount the air filter flap. Mount the quick locking screws.



## Maintenance of the door lock

- Clean the door handle, door hinges and the locking counterpart at least once a year.
- After cleaning, lubricate the running surface of the handle and the locking counterpart with medical vaseline.