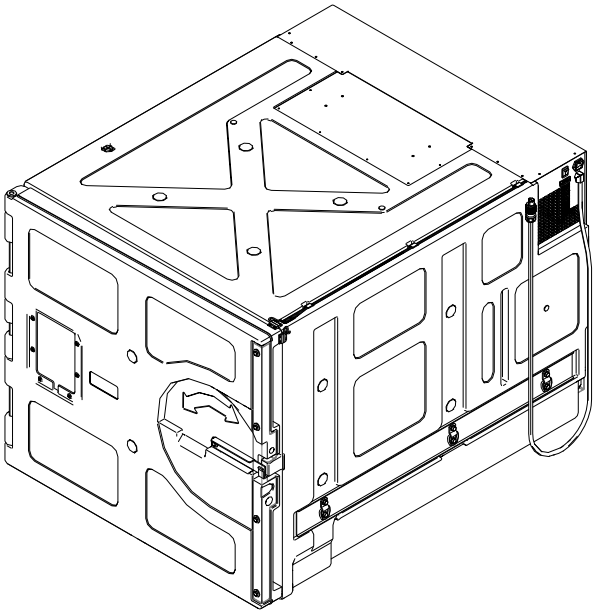
medical systems



CF 850 Van HF

INSTALLATION, OPERATION and MAINTENANCE

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CE

CF850 VAN HF

BEFORE CONNECTING THE UNIT, PLEASE MAKE SURE THAT THE VOLTAGE ON THE DATAPLATE CORRESPONDS TO THE LOCAL VALUES.

AVANT DE PROCÈDER AU RACCORDEMENT ÉLECTRIQUE DE L'APPAREIL, VÉRIFIER QUE LA TENSION INSCRITE SUR LA PLAQUE D'IDENTIFICATION CORRESPOND À LA TENSION LOCALE.

ANTES DE CONECTAR LA UNIDAD, ASEGURARSE DE QUE EL VOLTAJE DE LA PLACA DE IDENTIFICACIÓN CORRESPONDE A LOS VALORES LOCALES.

ANTES DE LIGAR A UNIDADE, CERTIFICAR-SE QUE A VOLTAGEM INDICADA NA PLACA DE CARACTERÍSTICAS CORRESPONDE AOS VALORES LOCAIS.

TABLE OF CONTENTS

GENERAL INFORMATION

- The main characteristics of the „CF 850 Van HF“ are :
  - Fitting and dismounting in a very short time without any tools.
  - Fast and safe fixation in the car by means of the provided belt set.
  - Due to the two integrated batteries the unit can be operated during 16 hours without any power supply (at 25°C ambient with precooled / preheated unit and load)
  - The robust cabinet made of PE is nearly insensitive against external damages.
  - Best temperature distribution with air circulation system and low energy consumption thanks to optimal isolation.
  - Stable inside temperature even at low ambient temperature due to automatic switching to integrated heating function.
  - An optical an acoustical temperature alarm system reports any deviation of the preset temperature set-point.
  - Possibility to connect an additional external alarm system.
  - Double magnet sealing system of the door.
  - Optimal inside illumination with powerful Multi-LED-system.
  - High product safety thanks door lock which can be opened from inside.
  - the unit has a fixed temperature setpoint at 5°C.

IMPORTANT GUIDELINES

- When refrigerating the unit operates via a DC compressor and is more or less insensitive to declination (up to max. 30°). To insure that the system functions correctly, the unit should always be placed horizontally. The appliance must be switched off if positioned at an angle of more than 30°. After being returned to a level position, allow to rest for approximately 30 minutes before switching on.
- The heating of the unit is done with two PTC-elements integrated in the evaporator.
- Do not place store or cool any food or drinks in the unit.
- Store the items within the appliance so that the air can circulate around the goods.
- The unit should be placed in a dry location and should not be exposed to direct sun light or any other heat source (e.g. radiator).
- Make sure the ventilation openings of the appliance are never blocked.
- Do not deposit any objects on top of the cabinet.
- All servicing and repairs must only be carried out by a qualified customer service engineer. Only genuine spare parts must be used.

WARNINGS

- Before using the unit, read these operating instructions carefully, including all the information on operating safety, use and maintenance.
- Keep these operating instructions ready at hand and leave them with the appliance, so that all users can find out about the functions and safety regulations.
- All installation work and adjustments to the unit must only be carried out by qualified personnel. Work performed by persons with insufficient technical knowledge may adversely affect the performance of the unit or cause physical injury or damage to the equipment.
- Every user must be well acquainted with the operation of the appliance and with the instructions concerning safety. Failure to observe these instructions can impair the performance of the appliance and cause damage.
- The unit must only be used by adults. This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved. Children under the age of 8 should not use or play with the appliance. Additionally, cleaning and user maintenance shall not be performed by children.
- Do not place flammable liquids or gas bottles inside the unit. Danger of explosion!
- Never lock anybody inside. Danger of suffocation!
- Protect the unit against rain and humidity.
- Pay attention on all moving parts when closing the door. Be careful when operating the closing mechanism.
- Do not lift the unit manually. Use adapted lifting equipment.
- Before cleaning or carrying out maintenance work, always switch the unit off and disconnect the plug.
- The unit's cooling system contains a refrigerant. Both the unit and the products stored inside can be severely damaged if the cooling system leaks. Make sure, therefore, that no sharp or pointed objects come into contact with the cooling system.

ENVIRONMENTAL PROTECTION

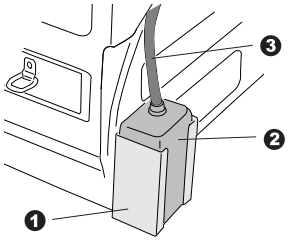
- Make your contribution to saving the environment. Bear in mind that orderly and proper disposal is required. Packaging materials and devices are always recyclable and should be taken for recycling.
- Before scrapping an old unit, remove the door so that children cannot lock themselves inside while playing and arrange for the lead accumulator to be removed and disposed of separately.
- When disposing of the unit, make sure that it does not get too hot, as combustible gas would cause the insulating foam to froth up.

TRANSPORT

- Check whether the unit has been delivered undamaged. If you find that damage has occurred in transit, immediately contact the delivery service or relevant sales outlet, submitting the delivery note or proof of purchase. Do not operate a unit that has been damaged in transit! If you are unsure, contact your sales outlet and ask them.
- The unit must be transported in an upright position only (maximum inclination 45°).

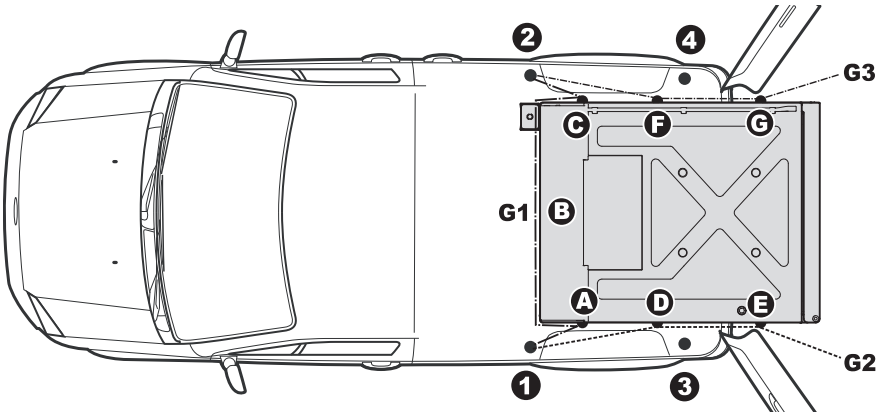
BEFORE USE

- After removal from the cardboard packaging, make sure the appliance is not damaged. Do not operate a damaged unit. In case of doubt please call your dealer.
- Before use, the supplied defrost water vessel must be fixed to the outside of the container as follows :
  - Fix the mounting bracket ❶ using 2 screws.
  - Slide the vessel ❷ into the bracket.
  - Insert the drainage tube ❸ into the vessel.
- Before use thoroughly clean the inside of the refrigerator (See chapter “Cleaning”) The appliance must be thoroughly dried after cleaning.

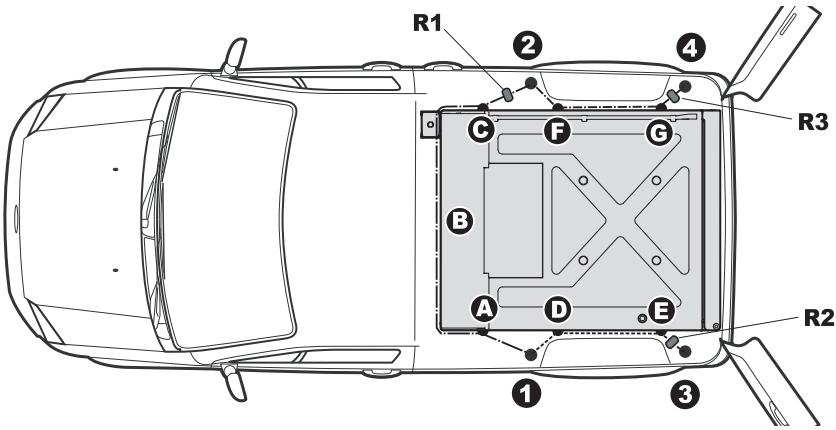


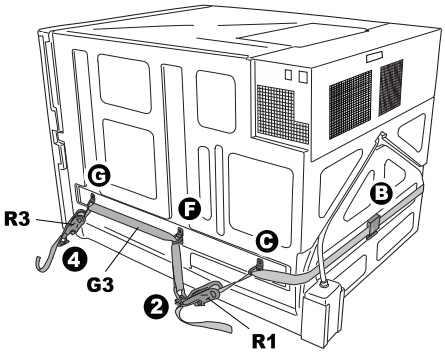
INSTALLATION

- For the fixation of the appliance inside the car, use the provided belt set consisting of 3 belts. Using these belts, the unit is fixed to the fastening eyelets inside the cargo compartment of the vehicle.
- The manufacturer recommends using an additional rubber mat. This mat is not included in delivery.
- Proceed as follows to fix the container in cargo compartment of the car :
  - Slide the container approximately halfway inside the cargo compartment.
  - Fix the first belt **G1** with the shackle to the front left eyelet ❶ in the cargo compartment. Slide this belt trough the front left eyelet of the container Ⓐ , through the front belt guide Ⓑ and through the front right eyelet of the container Ⓒ to the front right eyelet ❷ of the vehicle.
  - The second belt **G2** is fixed with the shackle to the same eyelet ❶ . This belt is guided through the eyelets Ⓓ and Ⓔ of the container to the back of the cargo compartment.
  - Fix the third belt **G3** in the same way as belt **G1** on the opposite side of the container : From eyelet ❷ through eyelets Ⓕ and Ⓖ to the back of the vehicle.

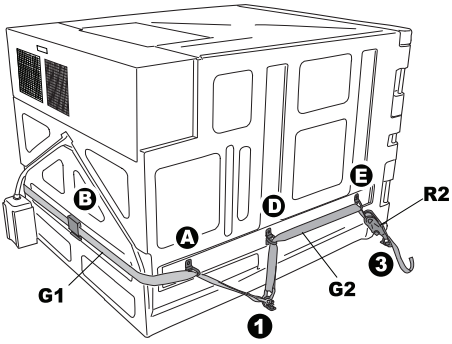


- Push the container into the cargo compartment just so far that the back doors of the vehicle can be closed without difficulty.
- Fix the belts **G1** and **G3** using the ratchet spanners **R2** resp. **R3** to the eyelets ❸ and ❹ . As these two belts are serving as main fixation the spanners must be strongly tightened.
- Now fix the belt **G2** to the eyelet ❷ with the spanner R1. As this belt is serving as guiding belt, the spanner must not be tightened too strongly.
- Regularly check the strain of the belts and tighten the spanners if necessary.





View from right



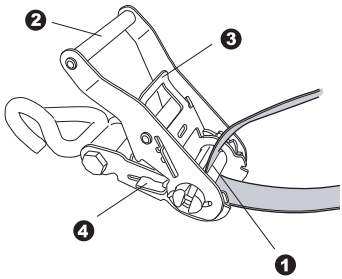
View from left

FIXATION BELTS

- Prior to every application check the belts on wear and damage. If any damage is detected on a belt or on a metal part, the belt may not be used any longer.
- Keep the belts in a dry place. They may not be exposed to temperatures higher than 90°C.
- The belts may never come into contact with chemicals. If this should happen, the belts must be disposed immediately.
- Protect the belts from sharp edges.

- **Tightening the belt :**

  - Slide the loose end of the belt through the slot ❶ and slightly tighten.
  - Move the handle ❷ for- and backwards at least 4 times to make sure that the belt firmly attached. The belt must be winded at least 3 times around the axis.
  - Pull the lock ❸ upwards and move the handle ❷ to the left to its basic position.



- **Releasing the belt :**
  - Pull the lock ❸ upwards and move the handle ❷ to the right in horizontal position.
  - The belt frame ❹ is released and the belt can be pulled out.

ELECTRICAL CONNECTION

The appliance can be operated with 3 different energy supplies :

INTERNAL BATTERY

- The unit is equipped as standard with two internal batteries. If no external power supply is available, the unit can be operated with these batteries, until the integrated battery guard switches off the unit.

EXTERNAL DC CONNECTION

- If the unit is loaded into the car, it can be connected to the 12V power system of the car using the installed plug. As soon as the generator provides energy i.e. when the car is running, the appliance is powered by the cars system. At the same time the internal battery is charged.
- Due to the constant load of 25A when connected to the 12V power system, only the original connection system must be used.
- The installation and connection must only be done by a certified electrician.

EXTERNAL AC CONNECTION

- As soon as the vehicle is parked and an power connection is available, the unit may be connected to an AC mains supply (220-240V, 50-60Hz). During AC-operation the internal battery is charged. In consequence of the integrated priority circuit, the DC connection is switched off, if AC power is available.
- Before connecting the unit, check whether the details on the dataplate correspond to local values.
- The AC-connection cable is removable. When connecting, first plug it into the appliance before connecting to an earthed socket.

BATTERY GUARD

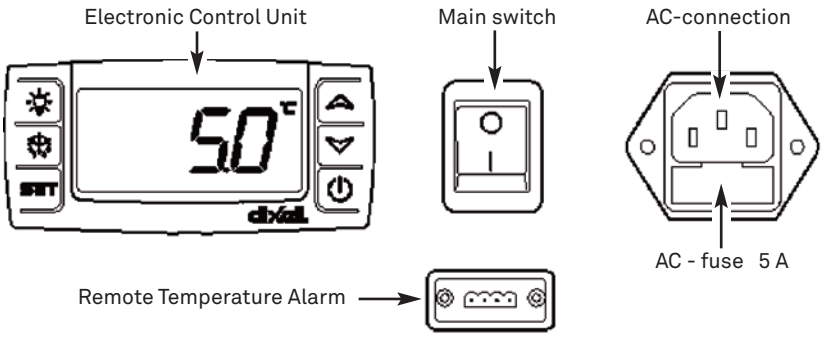
- To protect the internal battery from discharging, the „CF 850 Van HF“ is equipped with an integrated battery monitor system. This monitor system is activated if no external power supply is available.
- The battery protection system will switch the unit off once the battery voltage drops below the preset cut-out value. The operation starts again once the unit is connected to an external power source. This cut-in process may take several minutes. Leave the appliance switched on during this period.

FUSES

- The „CF 850 Van HF“ is equipped with 4 different fuses :
  - an AC fuse of 5A in the connector plug
  - the internal battery is protected by an 80A fuse
  - the compressor / heater is protected by a 25A-fuse
  - the battery guard is equipped with a 10A-fuse.
- The 3 last-mentioned fuses are located in the compressor compartment and may only be replaced by an certified electrician.

OPERATION

CONTROL PANEL



SWITCHING ON

- Switch on the unit by turning the main switch to position „ I ”.
- Shortly after switching on, the inside temperature of the unit is shown on the display.
- Apart from the buttons “△”, “▽” and “SET” all the buttons on the electronics are disabled.

ELECTRONIC COOLING UNIT

- The electronic unit controls and regulates the set-point temperature of the unit.
- At standard conditions the instrument displays the inside temperature in °C.
- Beside this standard display, the control unit shows different symbols :

compressor is running (cooling mode)

inner fans activated

heater is running (heating mode)

alarm situation

Defrost cycle is running

TEMPERATURE SETPOINT

- The temperature set point is the set target temperature of the appliance.
- The set temperature set point can be displayed by briefly pressing the “SET” button on the electronics. After 5 seconds the display switches back to the normal temperature display.
- The setpoint of the unit is fixed at 5°C and cannot be modified.

PARAMETER SETTING

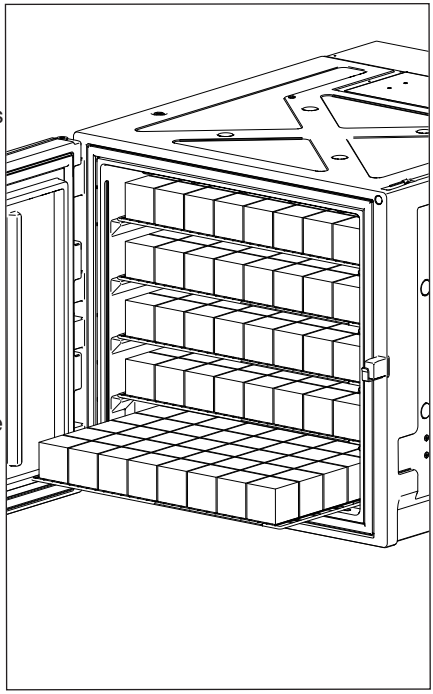
- Various parameters can be set or adjusted on the electronics.
- To change a parameter proceed as follows:
- Press the “SET” and “▽“ buttons simultaneously for a few seconds until the °C-LED flashes.
- Select the desired parameter with the “▽“ or “△“ buttons.
- Press the “SET” button to display the value.
- Use the “▽“ or “△“ buttons to change the value.
- To save the new value and go to the next parameter, press the “SET” button again.
- To leave the parameter level, press the “SET” and “△“ buttons simultaneously or wait 15 seconds until the display switches back to the normal temperature display. The new specification will be saved in any case.

- Parameter list :

  rES : Decimal resolution of the temperature display: “in” = 1°C; “dE” = 0.1°C default : dE)
  but : Mute period of the acoustic alarm when the mute button is pressed (Shown in minutes - default: 30 min)
  ALU : High temperature alarm: above this limit, an alarm is generated by the electronics . (default: 3° above the temperature set point)
  ALL : Low temperature alarm: below this limit, an alarm is generated by the electronics . (default: 3° below the temperature set point)

STORAGE OF VACCINES

IMPORTANT:
Special care should be taken to preserve the vaccines that get damaged by freezing. Never store them touching the side surfaces in the cabinet of the unit.



- Do not load vaccines higher than the indicated maximum level.
- Keep the packets containing the vaccines in neat rows.
- Different vaccines should be kept separately to facilitate easy identification.
- Keep about 2 cm space between rows for circulation of air.
- The vaccines are advised to be stored on the provided wireshelves.
- After loading the vaccines, close and lock the lid properly.
- When fresh vaccines are stored in the device, the cabinet temperature may go up initially, but should fall and return to the required range after a few hours.
- The cabinet temperature may vary depending upon various factors, such as;
    - the ambient temperature,
    - the amount of vaccines stored,
    - frequency of lid openings
    - circulation of air around the unit

ALARMS

TEMPERATURE ALARM

- When an alarm situation occurs, attempts must be made to find the cause of the alarm and rectify it as soon as possible. If unable to do so, the necessary measures must be taken immediately so that the goods stored are not damaged.
- The temperature alarm limits are relative alarm limits i.e. if the temperature set point is adjusted, the temperature limits automatically move accordingly.
- If the inside temperature of the appliance goes above or below the set alarm values, both an acoustic and an optical alarm is triggered by the electronics.
- The optical alarm consists on the one hand of the alarm symbol being shown on the display. Furthermore, the inside temperature of the appliance and the alarm message “HA” in case of warm alarm or “LA” in case of cold alarm, are displayed alternately. The display only switches back to the normal temperature display once the alarm situation is over.
- The acoustic alarm can be muted for a preset time (parameter “but”) by pressing any button on the electronics. If the alarm situation has not been rectified by the end of this period, the acoustic alarm is activated again.
- After switching on the appliance the temperature alarm function is disabled for 3 hours.

ALARM IN THE EVENT OF SENSOR FAILURE

- The appliance is equipped with 2 temperature sensors. If a sensor fails or is defective, the following alarms are generated by the electronics:
- Error message “P1” : failure of the control sensor. The display alternates between the error message “P1” and the temperature measured by the display sensor. As the control sensor is no longer working, the appliance is regulated by a pre-programmed ON-OFF mode.
- Error message “P2” : failure of the display sensor. Only the error message now appears on the display. The appliance's automatic controls continue to work but no temperature alarms are generated.
- Together with the error message on the display, an acoustic alarm sounds. This acoustic alarm can be muted by pressing any button on the electronics for a preset time (parameter “but”). If the alarm situation has not been rectified by the end of this period, the acoustic alarm is activated again.

DOOR ALARM

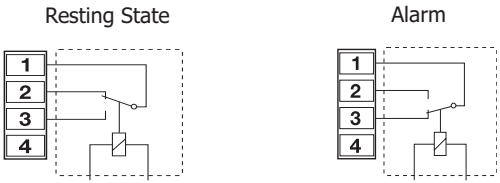
- If the unit’s door stays open for longer than 1 minute, the electronics generate a door alarm.
- During this alarm phase, an acoustic signal sounds, the alarm LED comes on and the error message “dA” is shown on the display.
- The alarm is automatically cancelled when the door is closed.

TEMPERATURE HISTORY

- The electronics save the highest and lowest temperatures measured. These values can be displayed at any time.
- highest value saved: Press △ button - “Hi” appears on the display followed by the highest temperature measured.
- lowest value saved: Press ▽ button - “Lo” appears on the display followed by the lowest temperature measured.
- To delete a memorised value : Press and hold the “SET”key for a few seconds while displaying the highest or lowest value. A message “rSt” is displayed and the saved value is deleted.
- When restarting the unit, the Hi- and Lo-values are reset.

REMOTE TEMPERATURE-ALARM FUNCTION

- The external alarm contact on the control panel can be used to connect any additional external temperature alarm system (visual or acoustic).
- A voltage of between 12V DC and a maximum of 250V AC can be connected to the potential-free contacts. The maximum load must not exceed 8A. The minimum power rating is 500mA / 12V AC. Refer to the diagram below for connection.



- Muting the buzzer in a temperature alarm situation only switches off the internal acoustic alarm signal. The muting does not interfere with the external alarm. The external alarm signal is only switched off once the cause of the alarm has been eliminated.

FANS

- The „CF 850 Van HF“ is equipped with internal ventilation. For optimal air circulation inside, it is important that the interior fans are always functional.
- To prevent outside air being sucked in unnecessarily when the door is open, the fans are switched off. The fan symbol on the display stays activated during door opening.
- The airflow to the fan must never be impeded. The ventilation slots must therefore never be blocked or covered.

HEATER

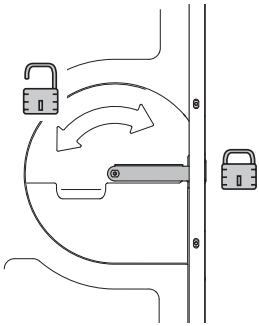
- The unit is equipped with an internal heater that heats up the interior if the inner temperature drops below the setpoint i.e. in case of low ambient temperature. The heater symbol is displayed as soon as the heater is in use.

INTERIOR EQUIPMENT / PROTECTING THE LOAD

- In series the “CF 850 Van HF” is equipped with the maximum amount of wire shelves, which is limited to 5 (1 top level, 1 bottom level and 3 mid-level shelves).
- To avoid any shifting of cargo when driving, we recommend to secure any load by means of expanders or similar equipment.
- When loading the unit, respect minimum distances to allow a good air circulation inside. Avoid any load directly near the evaporator.

DOOR LOCK

- The door of the appliance is equipped with a magnetic door gasket. For transport purposes, the door must be firmly locked with the locking lever.
- The door locking system is designed in such a way, that no person can accidently be locked inside. The door can be opened from the inside by means of the inside lever.



INNER LIGHTING

- The unit is provided with a powerful inside lighting (LED) which is switched on as soon as the door is opened.

AUTOMATIC DEFROSTING

- The unit is equipped with an automatic defrosting. After specified run time, the compressor is switched off until the evaporator temperature reaches a predefined temperature. If this temperature is not achieved after a certain timeout, the appliance is switched on again.
- During a defrosting process the defrosting symbol is shown in the display.
- The defrost water is evacuated through the drainage tube into the vessel at the outside of the appliance. This vessel needs to be emptied and cleaned daily.

CLEANING / DISINFECTING

- The equipment should be cleaned inside and outside before first time use and at regular intervals thereafter.
- Only use neutral cleaning agents. Never use aggressive or caustic cleaning agents, scouring powder, steel wool, abrasive sponges or chemical solvents. When cleaning, make sure that no fluids of any kind run into the ventilation housing. After cleaning the unit must be completely dried.
- Remove any vaccine leakage immediately.
- The use of a high pressure cleaner and/or a steam jet is strictly forbidden.
- Clean the unit and leave the door slightly opened before any long term storage unplugged.
- If the appliance needs to be disinfected, we recommend to use any commonly used disinfecting agents.
- Clean the defrost vessel at the back of the unit regularly.

PERIODIC MAINTENANCE

- The service personnel should be made sensitive to announce damage or defective parts on the equipment immediately, so that in appropriate period a repair or an exchange of a defective part is possible. Thus damages at equipment and on the load can be avoided.
- To assure the safety and reliability of the appliance, any repair and maintenance work must only be done by an certified dealer or customer centre with exclusive use of original spare parts.
- The batteries should be checked yearly as a preventative measure.

DAILY

- Evacuate the condensation water as described before.
- Take temperature readings and note down the temperature and the time of reading. Keep the temperature records systematically. It is suggested that minimum 2 readings should be taken (in the morning and afternoon) preferably at the same time each day.

WEEKLY

- If an increasing amount of condensation water is observed :
  - Examine the gaskets on the lid, if they sit properly. Any gap between the cabinet and gaskets will allow outside air to go in and form frost early. In such cases the hinges should be adjusted or the gaskets should be changed.
  - Restrict and reduce frequency of opening the unit. Open only when absolutely necessary.

MONTHLY

- Clean the unit from any dust :
  - Switch off the Unit and disconnect it from the power supply.
  - Clean the ventilation grids with a brush or a vacuum cleaner as described above.
- Clean the lid seal.

YEARLY

- The batteries of the unit should be checked yearly and replaced if necessary.

TROUBLE SHOOTING

IMPORTANT :

If the unit is not working at all or not working properly, check that the vaccine temperature is within the recommended limits. Do not open the lid unless necessary. Regularly verify the temperature and if there is a risk that the temperature may exceed the higher limit, before the unit is repaired, transfer the vaccines to a working refrigerator or cold-box.

If any abnormal sound, smoke, smell etc. in the unit is observed, disconnect it from the power supply and notify the refrigerator technician.

Problem: Interior temperature too hot

- Check if a large quantity of warm goods have been placed inside the unit recently, causing a surge of the interior temperature.
- Keep door openings to a minimum. The interior temperature may be high due to a recent door opening. Wait and determine if the interior temperature returns to normal values.
- Check if the ambient temperature is outside of the operating range of the device, which can cause the interior temperature too rise.
- Check if there is enough air circulation around the unit, a lack of air circulation can cause a surge in interior temperature.

Problem: Interior temperature too cold

- Check if a large quantity of cold goods have been placed inside the unit, causing a surge of the interior temperature.

Problem: The unit does not work at all

- Before calling a serviceman, check if:
  - the main switch of the device is switched to “I”.
  - the fuses are intact and the power socket is supplying enough power.
  - the power supply cord is properly connected.
  - the unit has not been switched off due to the battery guard.

SHUTTING DOWN

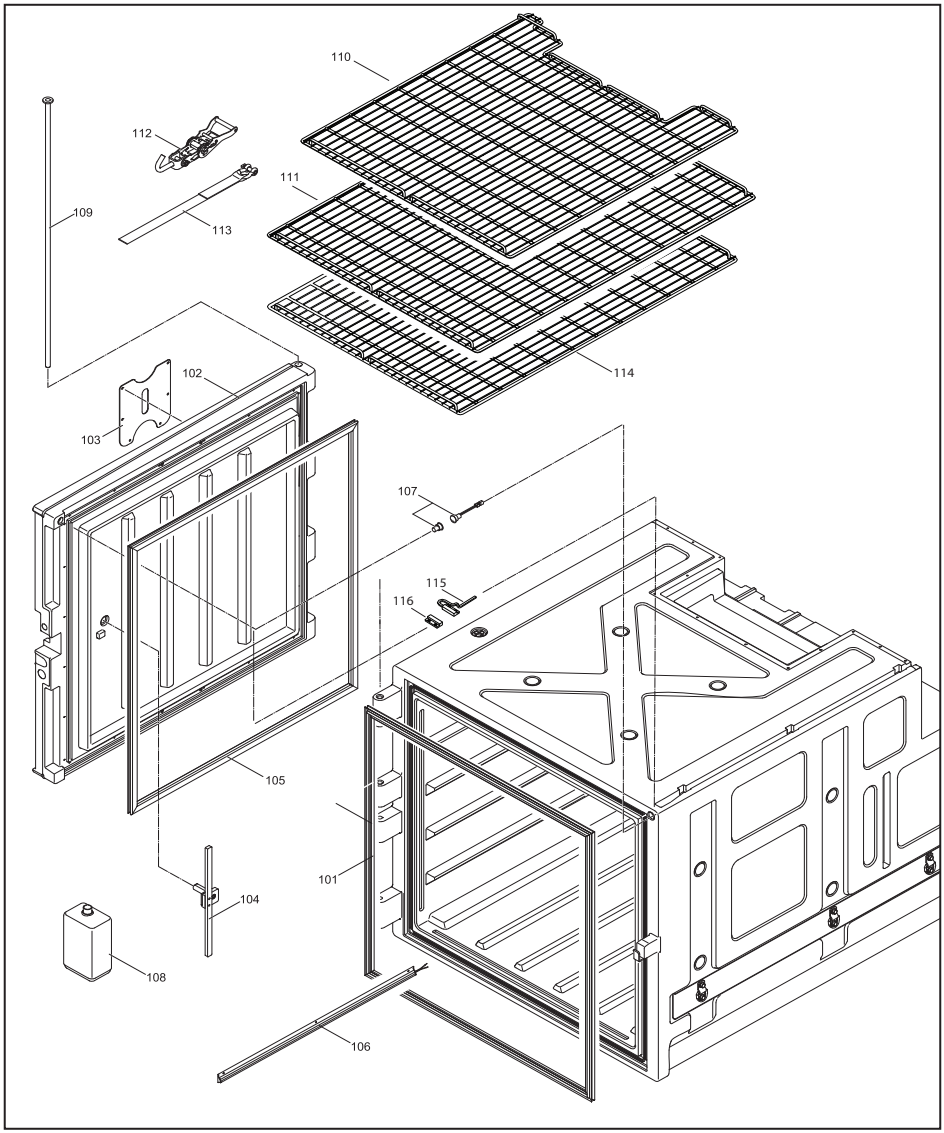
If the unit needs to be shut down for transportation reasons or other.

- Switch off and disconnect the unit from the power supply.
- Defrost and clean the interior. Leave the lid open until the unit is completely dry.

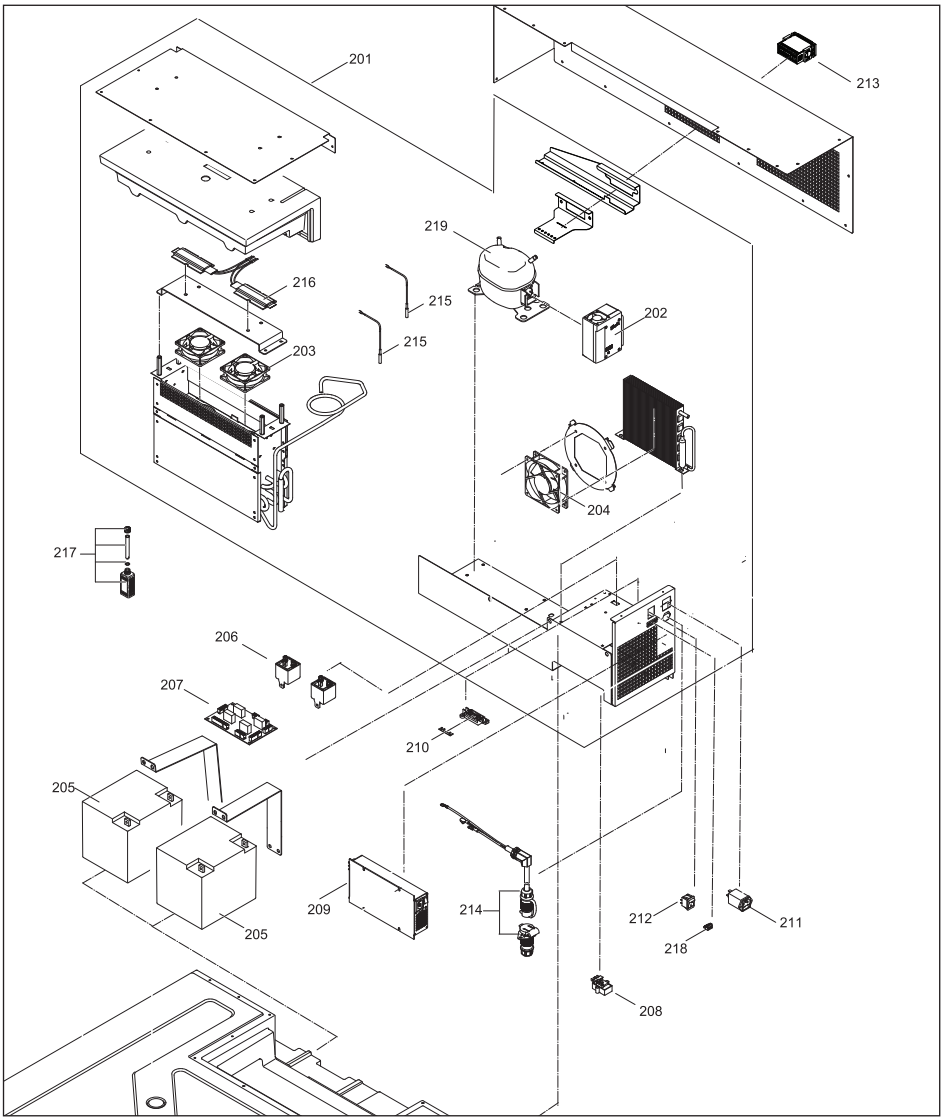
TECHNICAL DATA

AC voltage V Frequency Hz	220-240V AC 50/60 Hz
DC Voltage V	12V
AC power	220 W/ Charging: max. 360 W
DC Power	150 W
Rated current A	AC: 1.33A - DC: 12A
Battery guard fuse	10A
Internal battery fuse	80A
Compressor circuit fuse	25A
AC appliance coupler Fuse	5A
Compressor type	Danfoss BD 80F
Refrigerant type	R 134a
Refrigerant quantity	135 g
Internal width	888 mm
Internal depth	1228 mm
Internal height	830 mm
External width	1100 mm
External depth	1400 mm
External height	1000 mm
Lid insulation	80 mm
Cabinet insulation	80-86 mm
Refrigerator gross volume	850 L
Vaccine storage capacity	396 L
Net weight	243 kg
CFC/HCFC free	yes
Fixed temperature setpoint	5°C
Operating temperature range	Hot zone
Ambient temperature range	0°C to +50°C
Climate class	SNT
Relative humidity range	5% to 75%
Shipping volume	1.959 m^3
Shipping weight	236 kg
Packing dimensions	1450x1150x1175mm

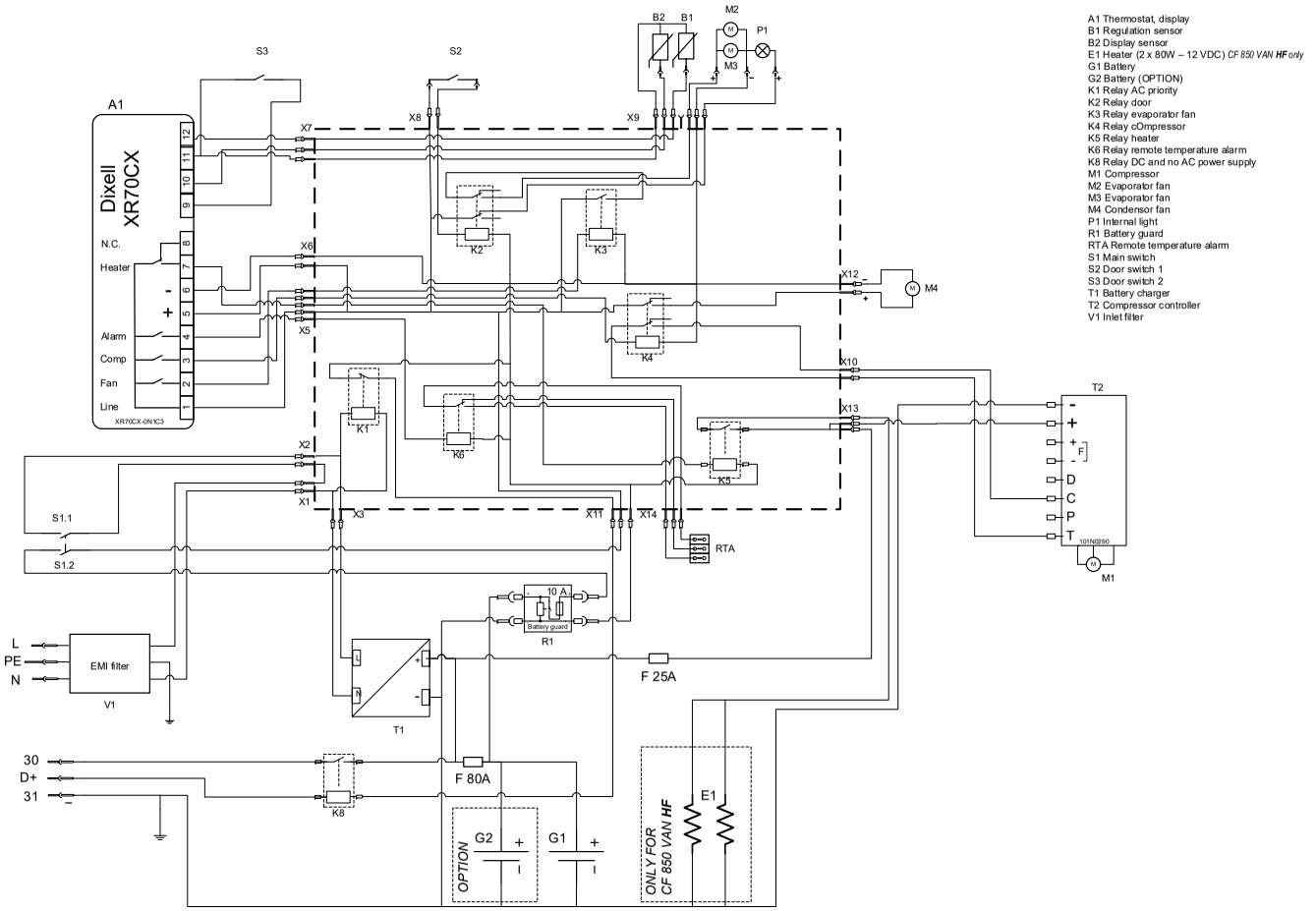
SPARE PARTS



Pos.	Part Nr.	Description	Pos.	Part Nr.	Description
101	294.5102.11	Frame S-N-S	109	296.1319.30	Hinge rodl
102	296.1278.31	Door	110	991.1808.45	Wireshelf, top
103	292.2031.03	Acrylic panel	111	991.1808.40	Wireshelf, middle
104	292.2031.04	Locking set	112	292.2031.20	Pressure ratchet
105	294.5102.12	Frame N-S-N	113	292.2031.21	Lot end
106	292.2031.05	LED bar	114	991.1808.46	Wireshelf, bottom
107	292.2031.22	Door Contact	115	292.5952.18	Magnetic sensor
108	292.2031.06	Bottle	116	296.3922.61	Magnet for sensor



Pos.	Part Nr.	Description	Pos.	Part Nr.	Description
201	292.2031.44	Cooling unit	211	292.2031.15	Line filter
202	292.2031.17	E-box	212	292.2031.14	Power switch
203	292.2031.09	Fan	213	292.2031.36	Temp. controller
204	292.2031.08	Ventilator	214	292.2031.23	Connection cable
205	292.2031.11	Battery	215	292.2031.37	NTC Sensor
206	292.2031.18	Relay	216	296.0041.20	Heating element
207	292.2031.35	Circuit board	217	294.2517.54	Reference bottle
208	292.2031.16	Battery gard	218	292.2404.94	Plug
209	292.2031.07	Charger	219	296.9702.11	Compressor
210	292.2031.24	Strip fuse			


A1 Thermostat, display
B1 Regulation sensor
B2 Display sensor
E1 Heater (2 x 80W – 12 VDC) CF 850 VAN HF only
G1 Battery
G2 Battery (OPTION)
K1 Relay AC priority
K2 Relay door
K3 Relay evaporator fan
K4 Relay cOmpressor
K5 Relay heater
K6 Relay remote temperature alarm
K8 Relay DC and no AC power supply
M1 Compressor
M2 Evaporator fan
M3 Evaporator fan
M4 Condensor fan
P1 Internal light
R1 Battery guard
RTA Remote temperature alarm
S1 Main switch
S2 Door switch 1
S3 Door switch 2
T1 Battery charger
T2 Compressor controller
V1 Inlet filter
Dixell
XR70CX
XR70CX-0N1C3
N.C.
Heater
Alarm
Comp
Fan
Line
EMI filter
Battery guard
10 A
F 25A
F 80A
OPTION
ONLY FOR CF 850 VAN HF
101N0290


B
medical
systems