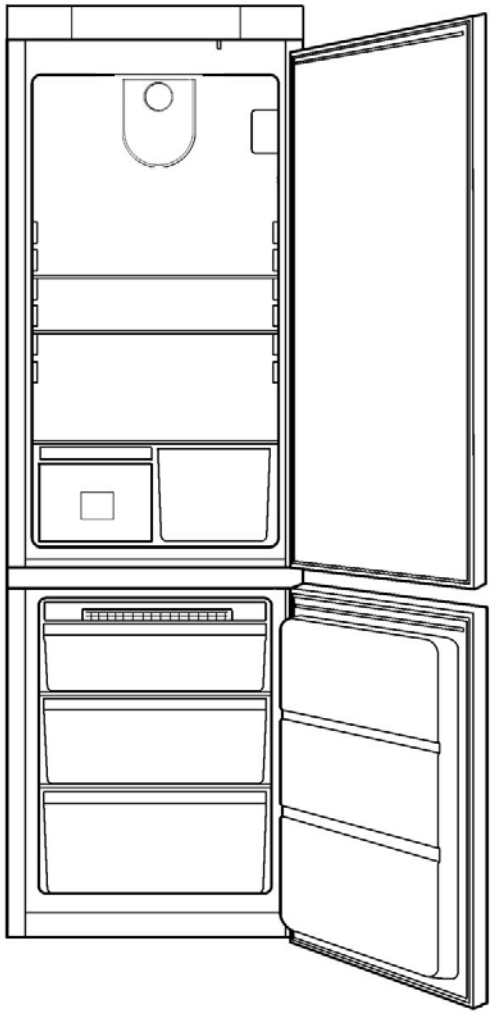
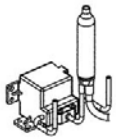
SERVICE MANUAL

REFRIGERATION





cd001718

REFRIGERATORS

PARTIAL NO FROST with electric valve and electronic ERF2000 5ACS ENV06 + RDC + DAC

FACTORY: HUY

Spares Operations Italy
Corso lino Zanussi, 30
I - 33080 Porcia (PN)
Fax +39 0434 394096

S.O.I.

Edition: 05.2007

Publication no.

599 38 84-20

EN

CONTENT

1 INTRODUCTION

This manual describes the PARTIAL NO FROST refrigerators with electric valve and ERF2000 5ACS ENV06 electronic produced in the Nyíregyháza factory (HUY).

These models are/feature:

- partial No Frost (no frost freezer, static refrigerator)
- free standing
- single-compressor
- electronic controls (electronic board ERF2000 5ACS)
- electric valve
- DAC 1.2 see Service Manual 599384547 (ATTENTION: without ON/OFF button)
- liquid crystal display (LCD on top styling ENV06)
- RDC rapid drink cooler device see Service Manual 599382974

WARNING: For safety reasons, the DAC does not feature the ON/OFF button in order to avoid explosion or fire risks in case of gas leakage inside the appliance.
Should the components of the DAC be replaced, use only the original parts indicated in the spare part lists!

They are appliances with the following PNCs:

PNC	MODEL	BRAND
925033240	ANA38707X	Arthur Martin Electrolux
925033254	RNA38707X	Rex-Electrolux

The controls of the appliance are inserted into the work top.

The power control board is ERF2000 5ACS.

The user interface board is of LCD type on top of ENV06 styling.

The appliance has a single-compressor and despite an electric valve is installed to simulate the operation of a two-compressor, it is not possible to switch off only one of the two compartments.

The temperatures regulation is the following:

- from +8 to +2 °C for the cooler
- from -15 to -24 °C for the freezer

The LCD display enables to show the temperatures of both compartments and also of the room temperature.

The appliance has the following functions:

- quick freeze
- rapid cooling
- freezer temperature alarm
- HOLIDAY cooler compartment
- child lock
- ECO (energy saving)

The cooler compartment is provided with a DAC 1.2 fan (without ON/OFF button).

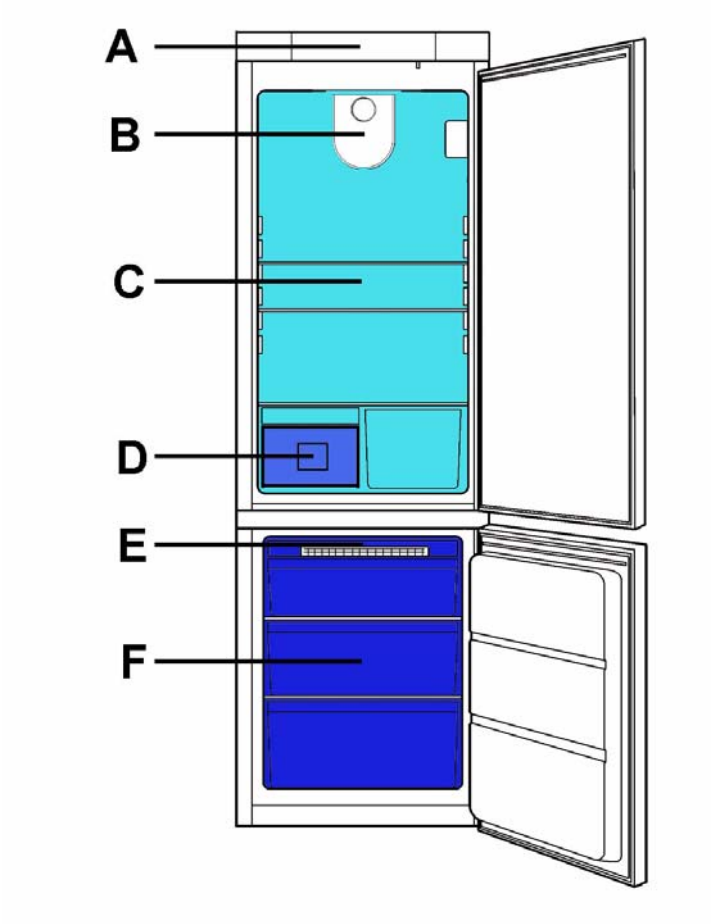
The cooler compartment is provided with a rapid drink cooler device RDC.

The appliance consists of the following compartments:

- freezer;
- cooler;

The evaporating circuit consists of:

- cold module (freezer compartment);
- tube evaporator (cooler compartment).



Key:
A. control panel
B. DAC 1.2
C. cooler compartment
D. rapid drink cooler device RDC
E. cold module
F. freezer compartment (freezer No Frost)

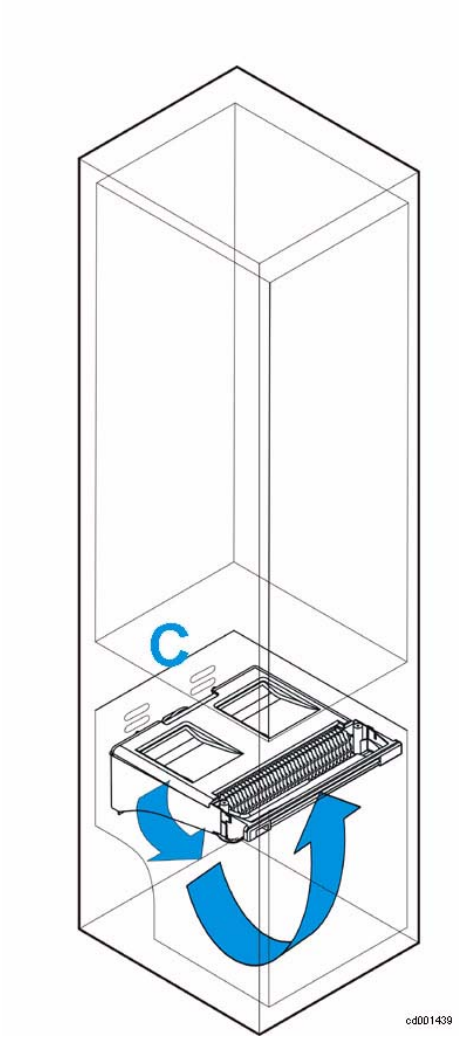
2 AIR CIRCULATION

Unlike the NO FROST refrigerators, in the PARTIAL NO FROST type the cooler and freezer compartments are separated physically.

The battery evaporator cools only the freezer compartment, while the tube evaporator cools only the cooler compartment.

The cold produced by the battery evaporator in the freezer compartment, is distributed by the fan C placed behind the cold module.

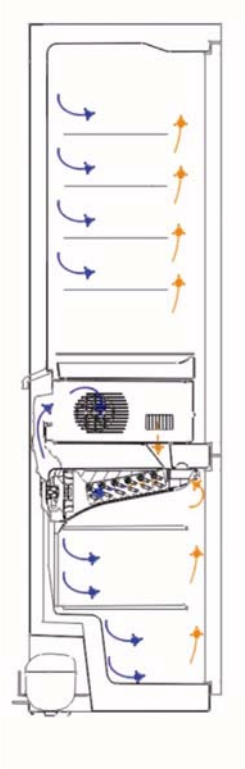
AIR FLOW



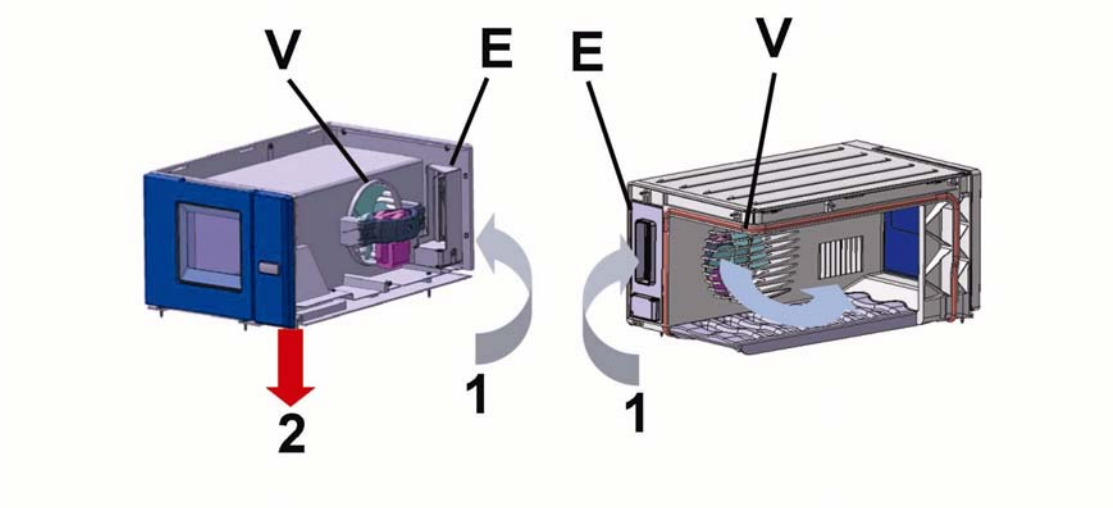
In case of door opening the fan does not stop.

2.1 Models with rapid drink cooler device RDC (see Service Manual 599382974)

The cold air that circulates inside the device comes from the cold module positioned in the freezer compartment.

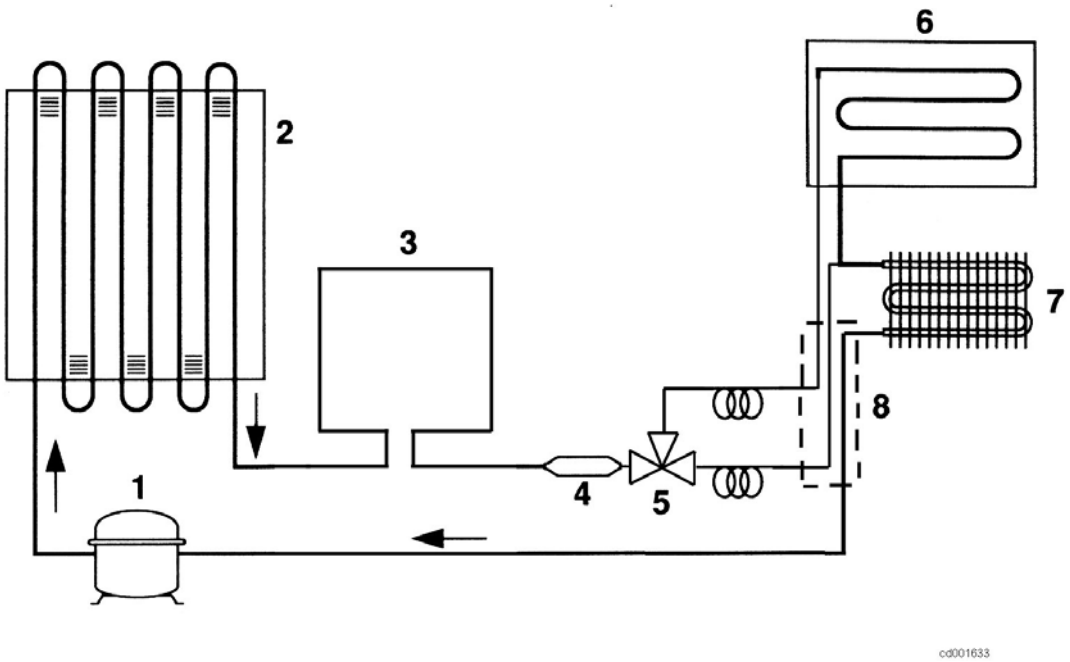


When the rapid drink cooler is activated, the damper E opens the flap and allows the aspiration of the cold air 1 from the freezer through the switching on of the fan V located inside the device.



The air 2 that is not cold anymore exits from the rapid drink cooler and returns to the freezer.

3 REFRIGERATION CIRCUIT



Key:

1. compressor;
2. condenser;
3. anti-condensation coil;
4. dehydrator filter;
5. electric valve;
6. tube evaporator (cooler compartment);
7. battery evaporator (freezer compartment);
8. exchanger.

The electric valve has 2 outlet capillaries to power:

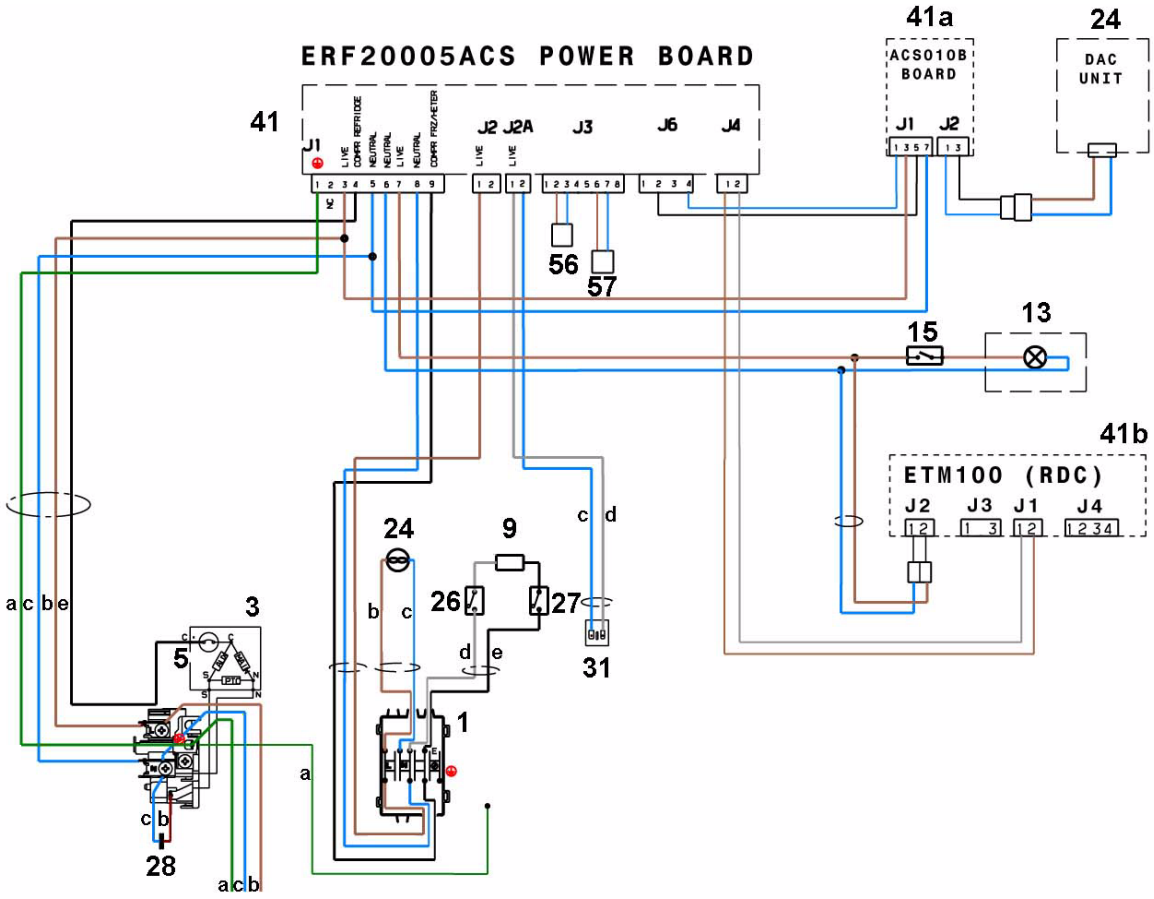
- cooler + freezer

or

- only the freezer.

4 ELECTRIC WIRING

(Check the specific diagram for each model!)



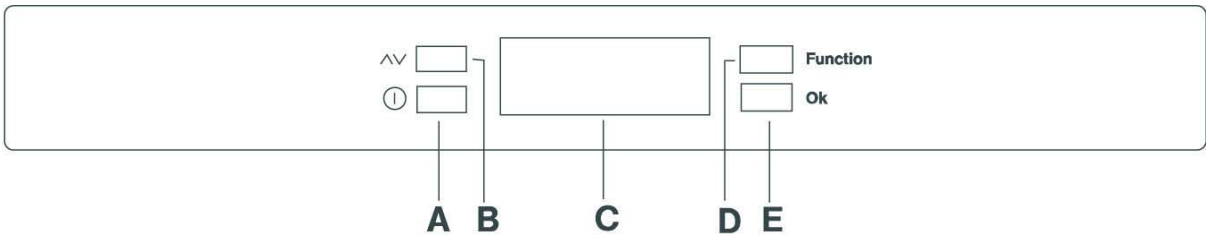
Key:

1. ZCP terminal box
3. compressor
5. motor protector
9. defrosting heater
13. lamp
15. cooler door switch
24. fan
26. safety thermal switch (+40 °C)
27. defrosting cut-out switch (+8 °C)
28. running capacitor (only for the models that feature it)
31. electric valve
41. electronic board ERF2000 5ACS
41a. electronic board VAC
41b. electronic board ETM 100
56. cooler air temperature sensor (cable colour: brown)
57. freezer air temperature sensor (cable colour: white)

a. yellow-green
b. brown
c. blue
d. white
e. black

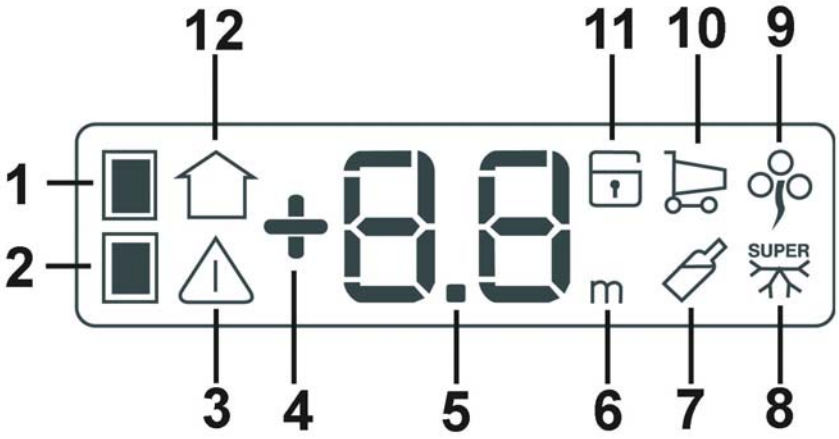
5 COMPONENTS

5.1 Control panel



Key:

A. ON/OFF button
B. Temperature regulation button
C. Temperature and function displaying
D. Function selection button
E. Ok button



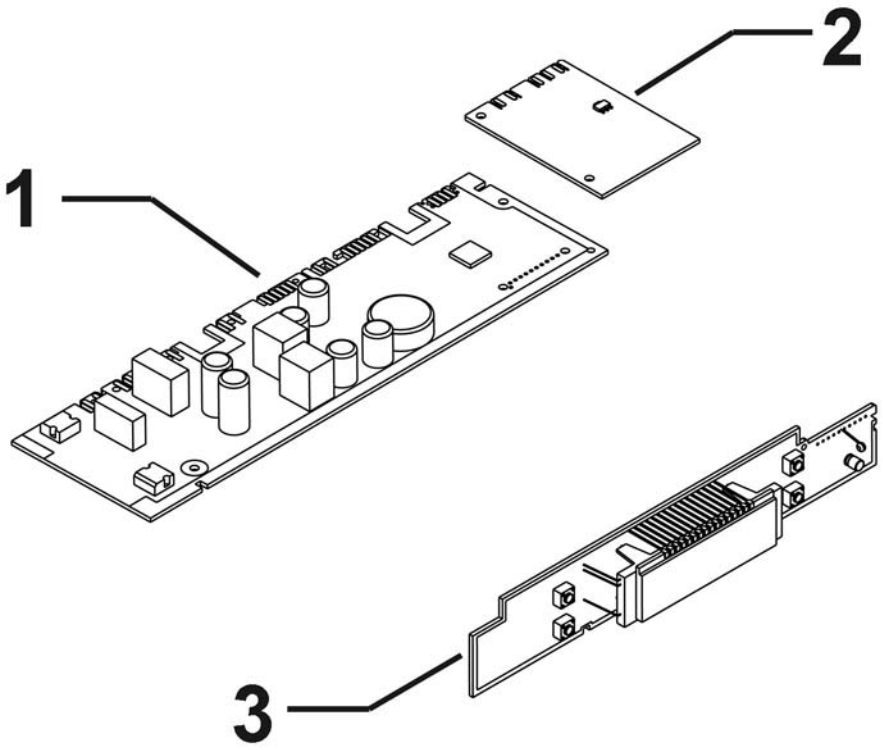
Key:

1. Cooler compartment symbol
2. Freezer compartment symbol
3. Freezer temperature alarm symbol and open door alarm (if featured)
4. Temperature - or + symbol
5. Temperature indication
6. Timer function (not featured for these appliances)
7. Rapid drink cooling function with RDC device
8. SUPER function (quick freeze)
9. ECO function (energy saving)
10. SHOPPING function (rapid cooling)
11. Child lock function
12. Room temperature symbol

5.2 Electronic boards

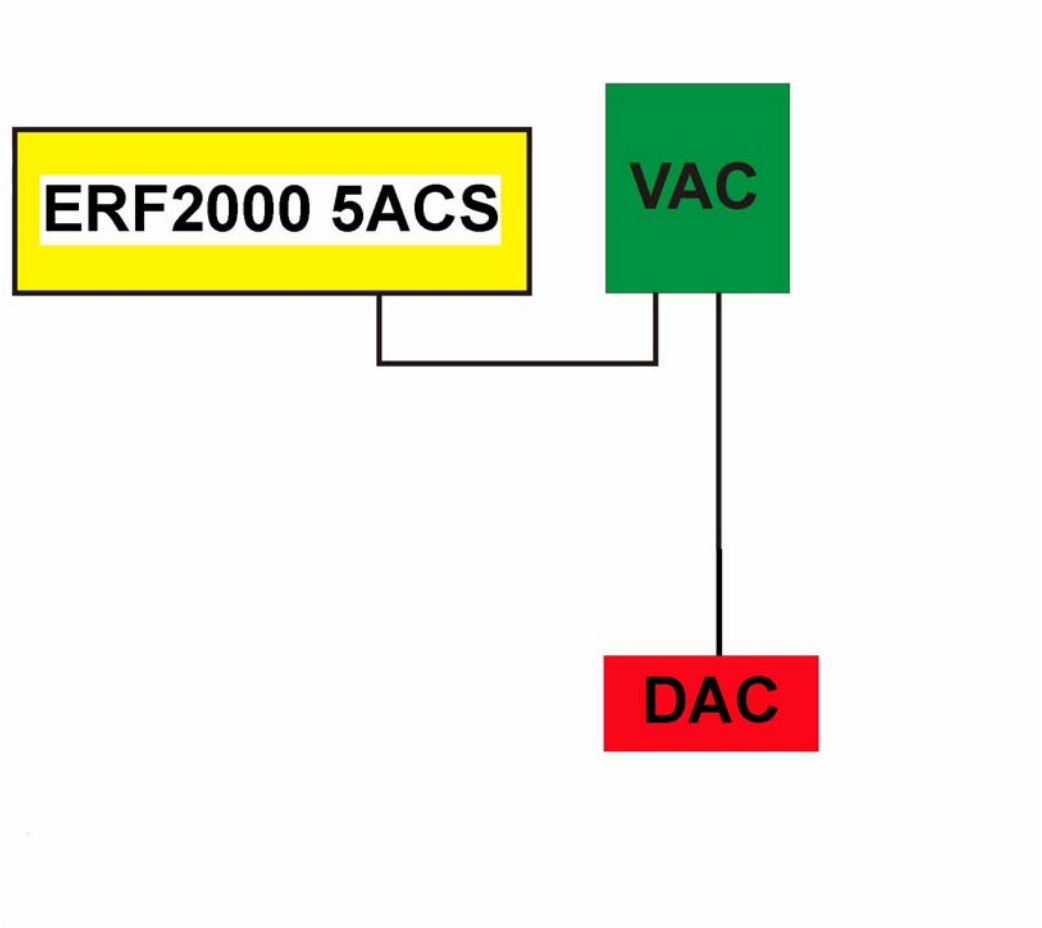
The electronic board of the appliance consists of:

1. ERF2000 5ACS power board
2. VAC electronic board
3. display board LCD type on top of ENV06 styling



The three electronic boards are connected by means of cables with a connector; therefore, the three boards are available singularly as spare part.

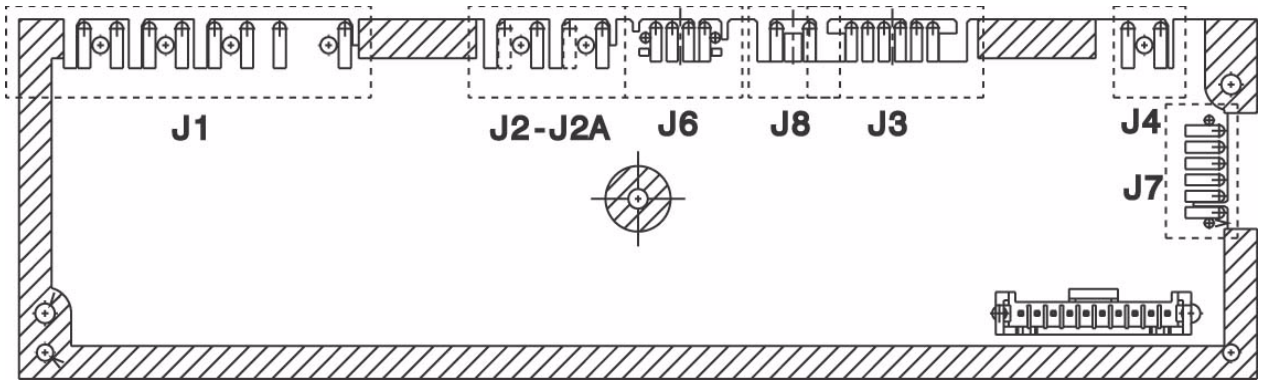
For the correct operation of the appliance, the DAC is powered by the VAC electronic board (controlled by the ERF2000 5ACS power board), since the DAC is controlled automatically.

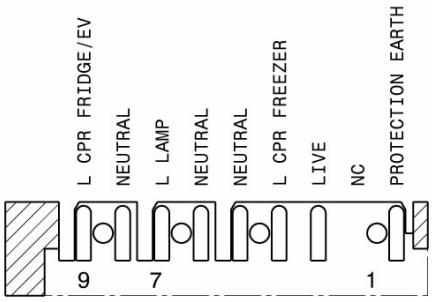


WARNING: For safety reasons the DAC does not feature the ON/OFF button in order to avoid explosion and fire risks in case of gas leakage inside the appliance.
Should the components of the DAC be replaced, use only the components indicated in the spare part lists!

5.2.1 ERF2000 5ACS Power board

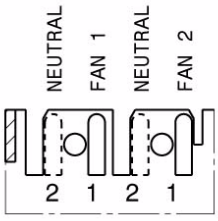
- View of the electronic board (side of components):





J1

1. earth contact
2. free
3. line
4. compressor
5. neutral
6. neutral for DAC and RDC
7. line for DAC and RDC
8. defrosting heater+fan neutral
9. defrosting heater line



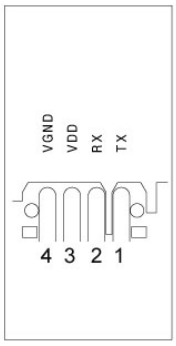
J2 J2A

J2

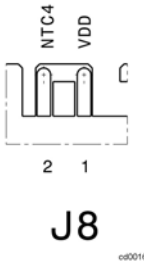
1. battery evaporator fan line (cold module)
2. free

J2A

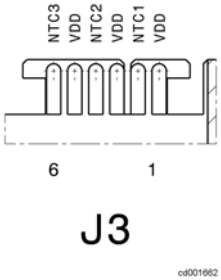
1. electric valve line
2. electric valve neutral



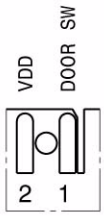
1. free
2. VAC electronic board
3. free
4. VAC electronic board



1. free
2. free



1. cooler air temperature sensor
2. cooler air temperature sensor
3. free
4. free
5. freezer air temperature sensor
6. freezer air temperature sensor



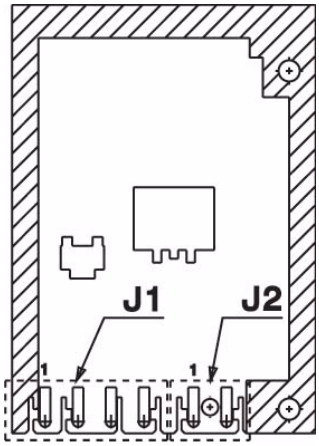
J4

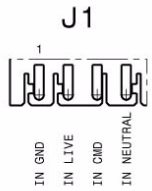
1. communication with ETM 100 board of the rapid drink cooling device RDC
2. communication with ETM 100 board of the rapid drink cooling device RDC

5.2.2 VAC Electronic board

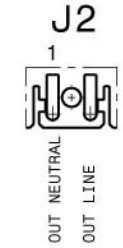
The VAC electronic board is powered with a 220V AC voltage by means of the J1 connector and receives the signal from the ERF2050 5ACS electronic board.

The voltage of the J2 connector is 220 V AC.



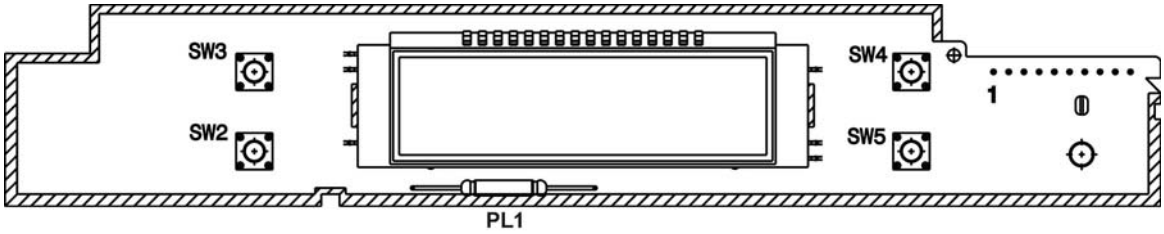


1. signal from ERF2000 5ACS
2. line
3. signal from ERF2000 5ACS
4. neutral



1. neutral
2. line for DAC fan

5.2.3 Display board LCD type on top of ENV06 styling



Key:

PL1 = reed element

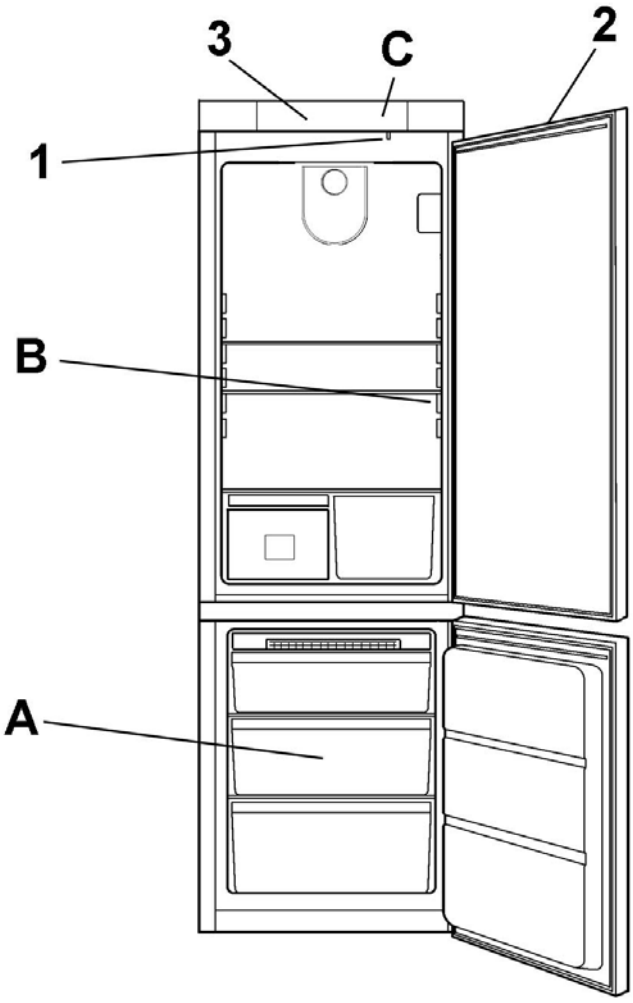
SW2 = ON/OFF button

SW3 = temperature regulation button

SW4 = function selection button

SW5 = OK button

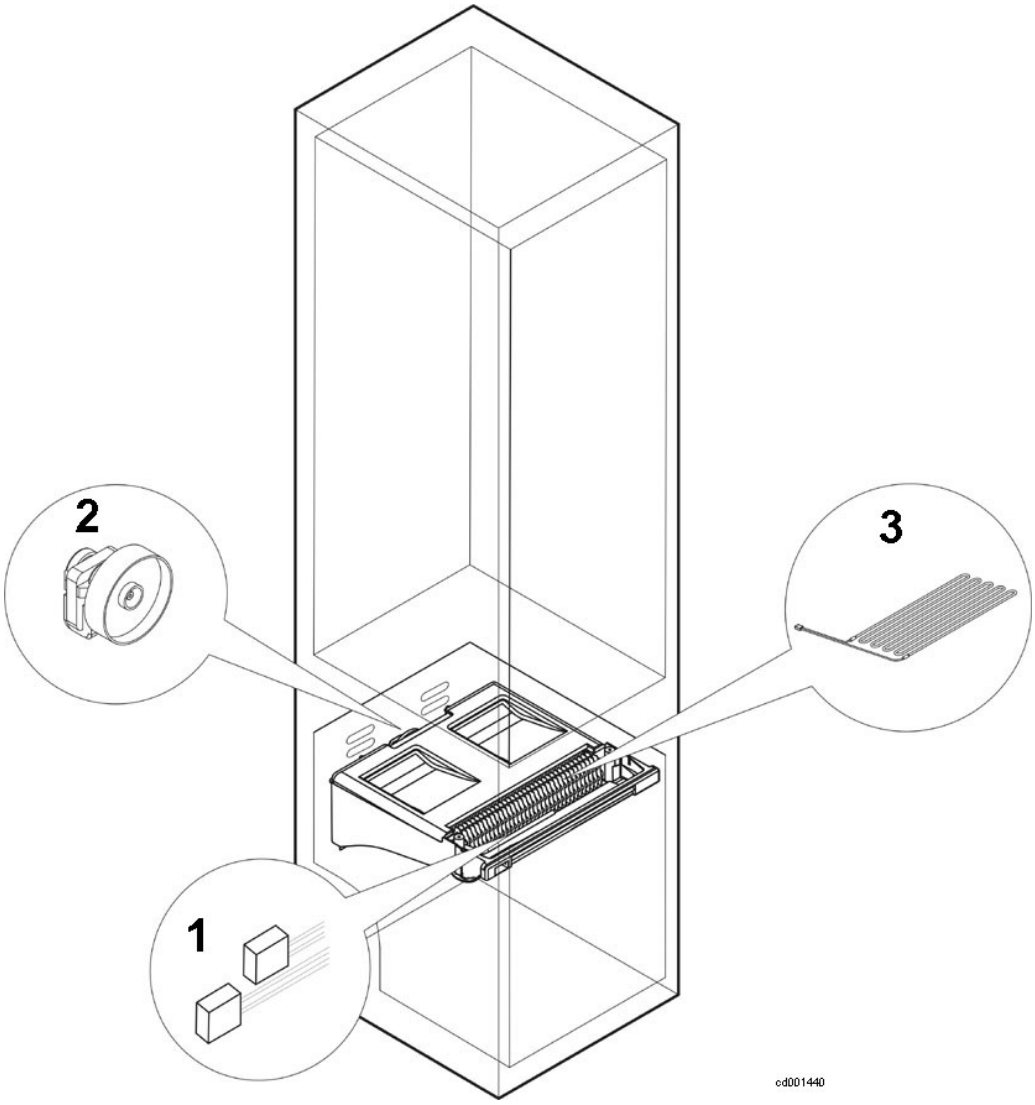
5.3 Cooler and freezer compartments



Key:

A. freezer air temperature sensor
B. cooler air temperature sensor
C. room temperature sensor

1. cooler door button
2. cooler door magnet
3. display board reed element



Key:

1. thermal switches
2. cold module fan
3. cold module defrosting heater

5.3.1 Temperature sensors

3 NTC sensors are used to detect the various temperatures:

- freezer air temperature sensor A (located on the freezer cell)
- cooler air temperature sensor B (located on the cooler cell)
- room temperature sensor C (located on the display board)

The sensors A and B feature the foamed cable inside the cabinet, therefore they are not replaceable (for further information, please see Service Bulletin 599374122).

Sensor C is mounted on the display board.

Note:

The freezer B temperature sensor is used both to control the appliance and to display the freezer compartment temperature.

5.3.2 Door switch

The cooler door button is located under the work top and controls only the switching on and off of the lamp.

Cooler door button

The detection of the opening of the cooler door is carried out by means of:

- magnetic switch for the cooler door control (located on the display board inserted into the work top)

The magnetic switch for the cooler door control is activated by a magnet located inside the cooler door.

5.3.3 DAC 1.2 [see Service Manual 599384547]

The DAC 1.2 is located inside the cooler compartment.

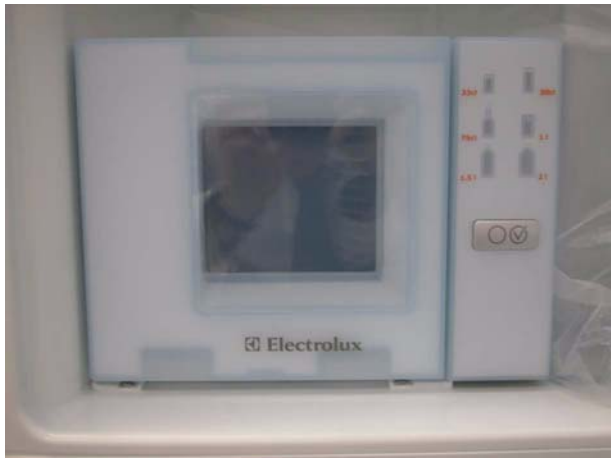
The switching on of the DAC 1.2 occurs automatically by means of the VAC electronic board which is controlled by the ERF2000 5ACS electronic board.

The DAC 1.2 is activated depending on the two following conditions:

- if the rapid cooling function is activated
- if a room temperature higher than +30 °C is detected.

WARNING: For safety reasons the DAC does not feature the ON/OFF button in order to avoid explosion or fire risks in case of gas leakage inside the appliance.
Should the components of the DAC be replaced, use only the original parts indicated in the spare part lists!

5.3.4 Rapid drink cooler device RDC [see Service Manual 599382974]



The rapid drink cooler device is located inside the cooler compartment.

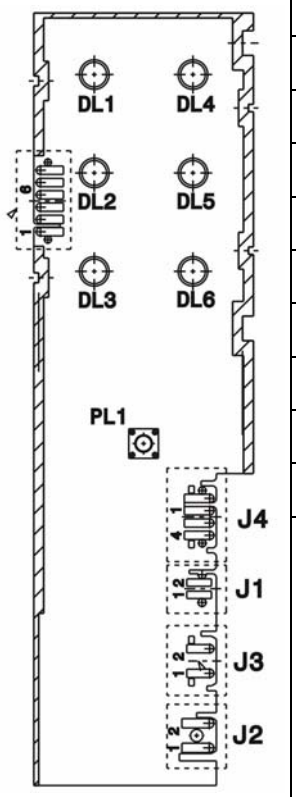
The switching on of the rapid drink cooler device occurs by means of the ON/OFF button.

5.3.4.1 ETM 100 Electronic board

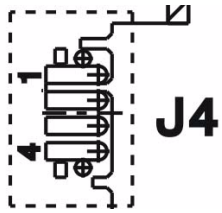
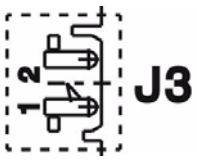
The electronic board of the rapid drink cooler is of the ETM 100 type.

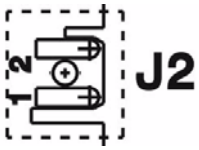
The ETM 100 board of the rapid drink cooler must be connected to the ERF 2000 5ACS power board in order to communicate it that the device is operating.

Key:



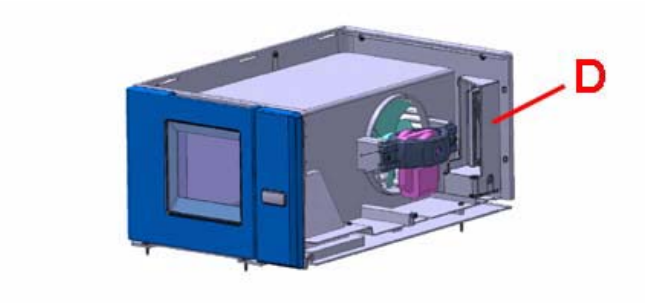
DL1	LED
DL2	LED
DL3	LED
DL4	LED
DL5	LED
DL6	LED
PL1	ON/OFF button
J1	Connector for communication ERF 2000 5ACS power board
J2	Connector for power supply from VAC board
J3	Connector for fan
J4	Air flow regulator connector(damper)

	1. Damper 2. Damper 3. Damper 4. Damper
	1. Output (-) for ERF 2000 5ACS power board 2. Output (+) for ERF 2000 5ACS power board
	1. Fan neutral 2. Fan line

	1. Line from VAC board 2. Neutral from VAC board

5.3.4.2 Air flow regulator (damper)

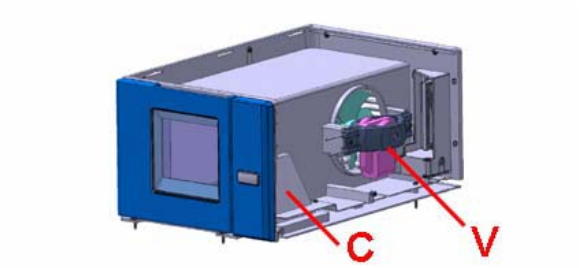
The passage or not of cold air from the freezer compartment depends on the damper D, which can have only 2 fixed positions, opened or closed.



The damper consists of a door and a direct current stepping motor and it is connected to the ETM 100 board by means of a 4-pole connector.

5.3.4.3 Fan

The cold air coming from the freezer compartment is sucked in by the fan V and returns to the cold module by means of the C duct.



5.3.5 Cold module fan

The fan is located behind the cold module.

The air is intaken by the fan, therefore, in case of its replacement, ensure that the air is forced towards the cell bottom.

The fan has the following values:

- voltage 240 V
- power 3,1 W
- speed 2000 rpm

In case of door opening the fan does not stop.

5.3.6 Defrosting heater

The defrosting heater is used to defrost the ice that has accumulated on the battery evaporator.

The defrosting heater has the following values:

- power 235 W
- voltage 240 V
- resistance 245 Ohm

5.3.7 Thermal switches

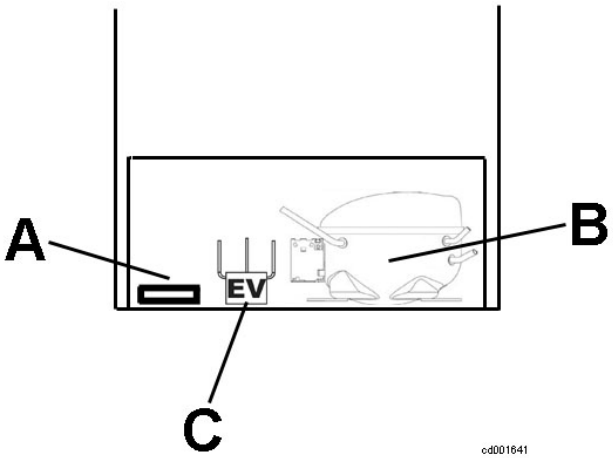
The thermal cut-outs are positioned in direct contact with the battery evaporator.

They switch off the defrosting heater respectively at:

- +8 °C cut-out defrosting switch (wire colour: black - blue)
- +40 °C cut-out safety switch (wire colour: black - white)

TYPE OF THERMAL OVERLOAD CUT-OUT	CUT-IN TEMPERATURE	
	OPENING	CLOSING
DEFROSTING	+ 8 °C	- 5 °C
SAFETY	+ 40 °C	+ 30 °C

5.4 Compressor compartment



Key:

A. ZCP terminal box
B. compressor
C. electric valve

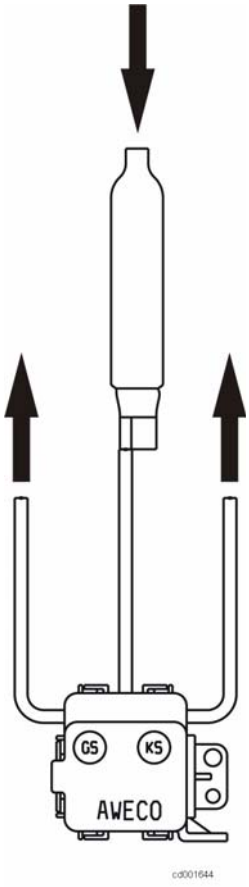
5.4.1 Electric valve

The electric valve is of the 3-way bistable type.

It is supplied together with the dehydrator filter.

The connections of the electric valve are the following:

- central hose with dehydrator filter to connect the condenser
- side hose (GS) to connect the capillary of the freezer circuit
- side hose (KS) to connect the capillary of the cooler+freezer circuit

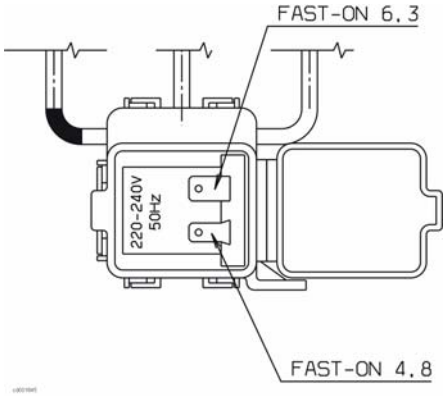


The electric valve has the following values:

- voltage 220 V - 50 Hz
- response time <1 sec

Note:

Comply with the electric connections and do not invert the polarity (the 2 terminals FAST-ON have different dimensions).



6 MAIN FUNCTIONS

6.1 Normal

Warning: Unplug the appliance before operating.

In case of first switching on with a freezer compartment temperature higher than 10 °C, the appliance operates with a test cycle (for the factory) for a maximum time of about 1,5 hours.

In this period do not check the correct functioning of the appliance, since the loads are activated only for internal check (compressor, fan, heater and electric valve).

When the appliance is off then:

- the compressor is off
- the display is off

Pushing the ON/OFF button, the LCD display switches on with the following displaying:

- flashing digits of the freezer
- freezer compartment temperature alarm (buzzer active)

Push the OK button to deactivate the buzzer.

Regulate the temperatures of the compartments so as to set the following values:

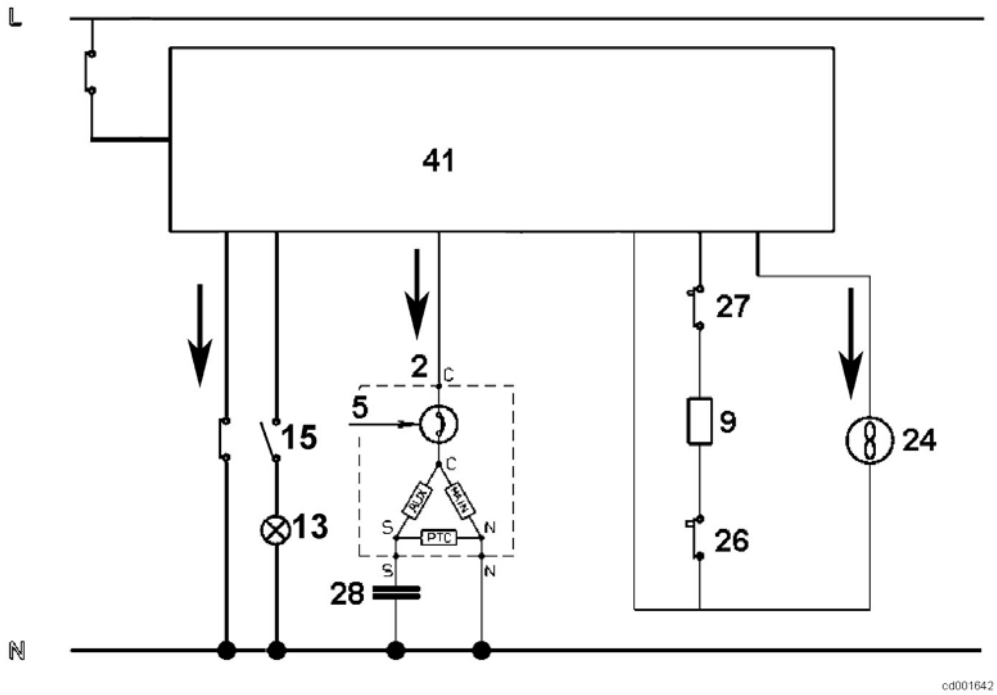
- about +5 °C in the cooler
- about -18 °C in the freezer

In NOFROST freezers, the humidity inside the freezer compartment accumulates on the evaporator battery thanks to the air circulation, thus preventing the formation of frost on food.

During normal operation time the electronic board powers the compressor (2) and the fan (24) circuits.

The operation time which corresponds to the interval between the following defrosting lasts about 14 hours (it does not depend on the door opening).

The arrows in the picture indicate the current path.



6.2 Normal with first switching on or power failure

In case of fault when the appliance is switched on for the first time or in case of a power failure, one of the two conditions described below occurs:

1. If the internal temperature is higher or the same as the sensor cut-in temperature (CUT-IN), when the power is restored, the electronic board activates the compressor and the fan till the set temperature is reached and after 5 hours the electronic board activates the defrosting procedure (after the compressor cut-out)

2. If the internal temperature is lower than the sensor cut-in temperature (CUT-IN), when the power is restored, the compressor functions in thermostatic conditions and after 5 hours the electronic board activates the defrosting procedure (after the compressor cut-out).

The electronic board activates, in any case, the defrosting procedure 5 hours after the first switching on and after a power failure.

6.3 Defrosting

All the humidity in the compartment accumulates on the evaporator, which is the coldest part of the compartment; periodically, about every 14 hours, it is then necessary to defrost the ice on the battery.

Warning for the models with rapid drink cooler device RDC:

The operation of the rapid drink cooler device RDC has the priority on the cooler operation.

Actually, if the rapid drink cooler device RDC is used during the defrosting phase of the cooler, then the defrosting procedure is interrupted and the compressor is switched on together with the two fans.

The defrosting starts after the compressor cut-out or if the compressor is on after 2,5 hours max.

The electronic board disconnects the circuit which powers the compressor (2) after 2 minutes the fan (24), waits 3 minutes then it powers the circuit of the defrosting heater (9) for a minimum time of about 20 minutes.

The heat generated by the defrosting heater does not affect the freezer compartment temperature or the food packages temperature, because the thermal energy is consumed in the defrosting process of the evaporator ice.

After 20 minutes, the electronic board checks the state of the thermal switch (27) every minute to detect the cut-out.

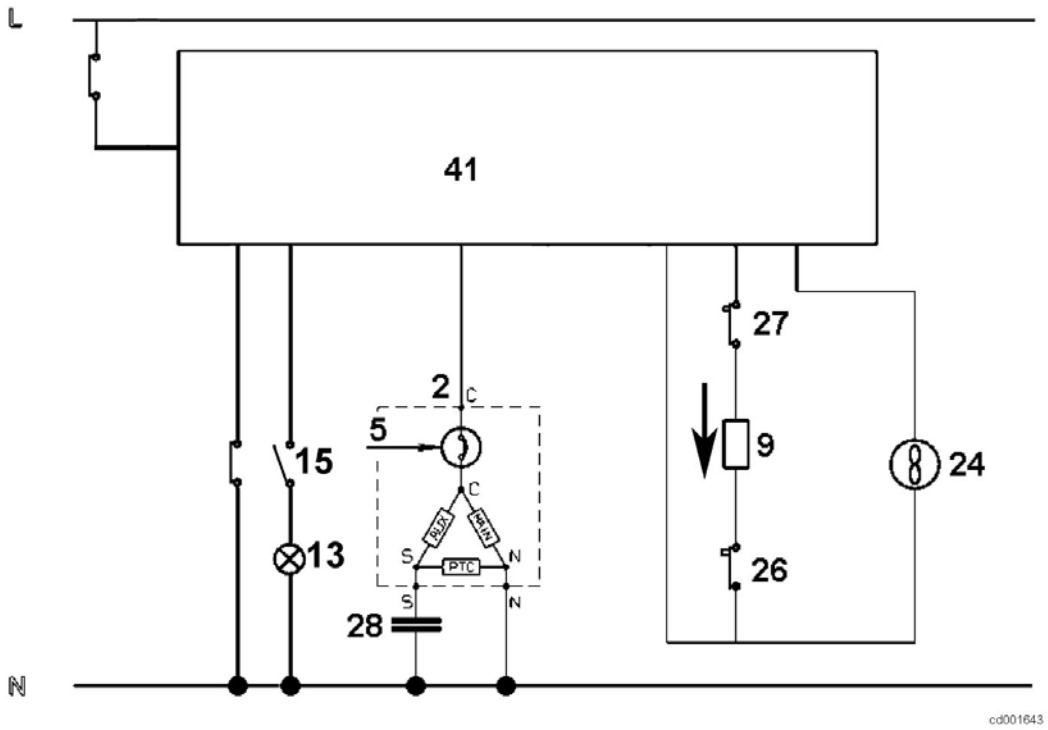
When the defrosting switch cuts-out and, anyway after 20 minutes, the electronic board switches the compressor on (2) with a 5 minute delay.

After 3 minute delay, when the air is already cold, the fan switches on too (24).

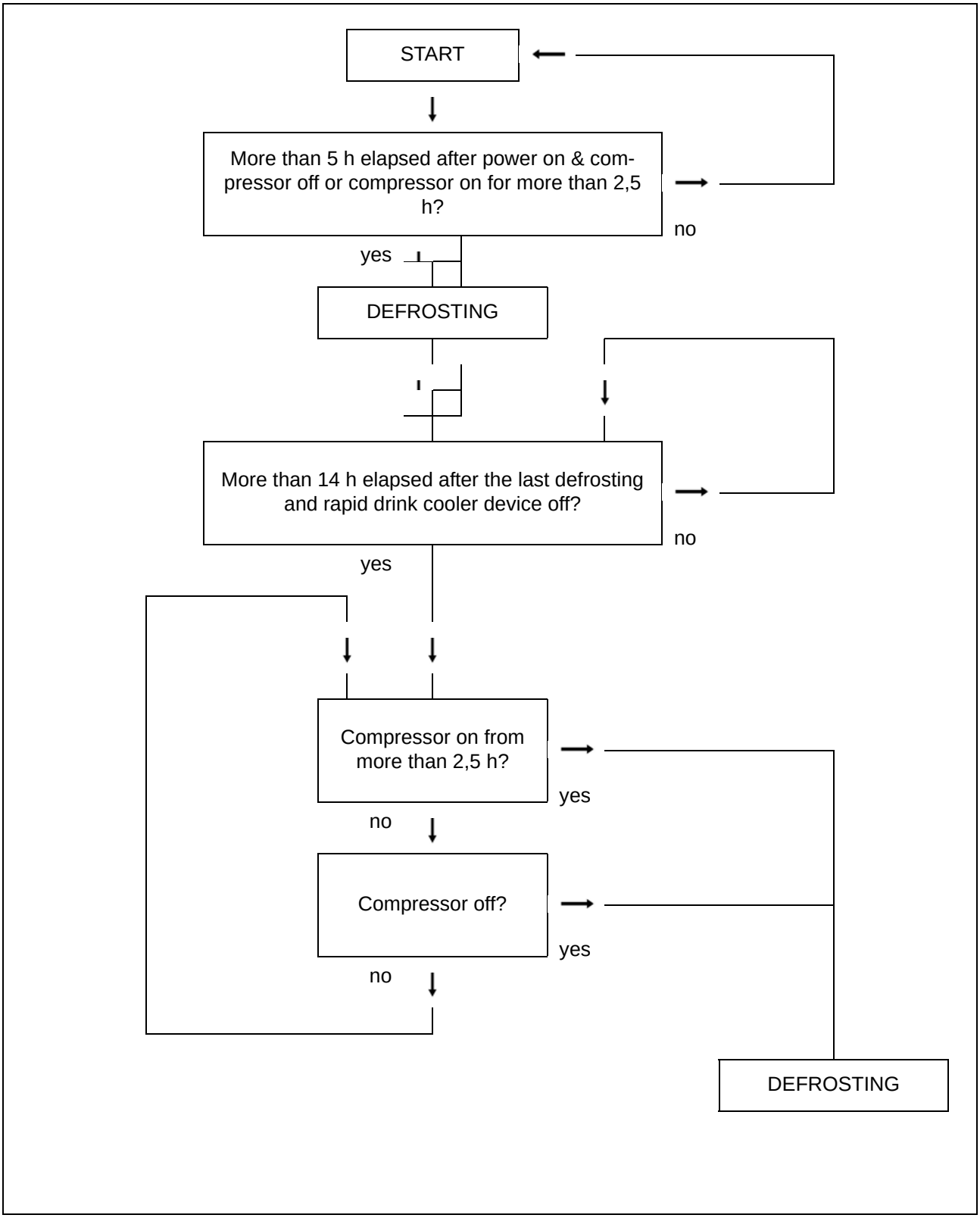
If for any reason, the defrosting cut-out switch (27) does not switch on and the battery temperature rises up to 40 °C, the defrosting heater (9) will be switched off by the safety thermal switch (26).

If 1 hour after the starting of the defrosting, the thermal switches did not cut out, the electronic board switches the defrosting heater off and continues its operation.

The arrows in the picture indicate the current path.



6.4 Flow chart for the defrosting management



6.5 Room temperature function

The room temperature function is activated pushing the function selection button till the symbol

disappears  then push the OK button within a few seconds, therefore:

- the symbol corresponding to the function is displayed;
- the buzzer emits a short signal;
- the room temperature is displayed.

The room temperature function is deactivated pushing the function selection button till

the symbol flashes  then push the OK button within a few seconds.

Note:

The room temperature function remains displayed also if the appliance is off.

6.6 Child lock function

The child lock function is activated pushing the function selection button till the symbol

disappears  then push the OK button within a few seconds, therefore:

- the symbol corresponding to the function is displayed;
- the buzzer emits a short signal;
- the child lock is activated.

The child lock function is deactivated pushing the function selection button till

the symbol flashes  then push the OK button within a few seconds.

6.7 HOLIDAY Function (valid only for the cooler)

The HOLIDAY function is activated when the customer does not want to use temporary the cooler.

In this case it is not necessary to leave the cooler door open because a 15 °C temperature is automatically set to avoid the formation of bad odours inside.

To activate the HOLIDAY function, push the temperature regulation button till letter H is shown in the cooler display, afterwards push the OK button.

Obviously the cooler must be empty because the 15 °C temperature does not allow the preservation of the most common food.

6.8 SHOOPING function (rapid cooling)

The SHOPPING function (rapid cooling) is activated pushing the function selection button until

the symbol appears  then push the OK button within a few seconds, therefore:

- the symbol corresponding to the function is displayed;
- the buzzer emits a short signal;
- The compressor operates in thermostatic conditions and not continuously (like the temperature knob was on max. position) for a duration of about 6 hours, and then it deactivates automatically;
- the DAC 1.2 is activated.

The SHOOPING function (rapid cooling) is deactivated pushing the function selection button till

the symbol flashes  then push the OK button within a few seconds.

6.9 ECO function (energy saving)

The ECO function (energy saving) is activated pushing the function selection button till

the symbol appears  then push the OK button within a few seconds, therefore:

- the symbol corresponding to the function remains displayed;
- the buzzer emits a short signal;
- the temperatures of the two compratments are set automatically to +5°C and -18°C

The ECO function (energy saving) is deactivated pushing the function selection button till

the symbol flashes  then push the OK button within a few seconds.

Note:

The ECO function is set automatically when the temperatures of +5 and -18 respectively for the cooler and freezer compartment are selected.

Therefore, the symbol relative to ECO function remains displayed even if there are other symbols of functions and does not disappear with the deactivation described above.

6.10 Rapid drink cooling function (see Service Manual 599382974)

The rapid drink cooling function is activated pushing the button of the

rapid drink cooler device till the symbol appears  therefore:

- the symbol corresponding to the function is displayed;
- the buzzer emits a short signal;
- a timer is activated depending on the drink type selection;

At the end of the timer count down:

- the symbol flashes 
- the buzzer emits the signal till the OK button is pushed

The rapid drink cooling function is deactivated pushing the button of the

rapid drink cooler device till the symbol disappears 

6.11 SUPER function (rapid freezing)

The SUPER function (rapid freezing) is activated pushing the function selection button till

the symbol appears 

then push the OK button within a few seconds, therefore:

- the symbol corresponding to the function remains displayed;
- the buzzer emits a short signal;
- some animated lines are displayed because the freezer temperature is not shown
- the compressor operates in thermostatic conditions and not continuously (like the temperature knob was on max. position) for a duration of about 52 hours, and then it deactivates automatically.

The SUPER function (rapid freezing) is deactivated pushing the function selection button

till the symbol flashes 

then push the OK button within a few seconds.

With the SUPER function the fixed defrosting can occur anyway depending on how much time is elapsed after the last defrosting.

6.12 Malfunctioning of cooler air temperature sensor

If during the normal operation a failure occurs to the cooler air temperature sensor (the signal coming from the sensor is out of range), therefore pushing the function activation button:

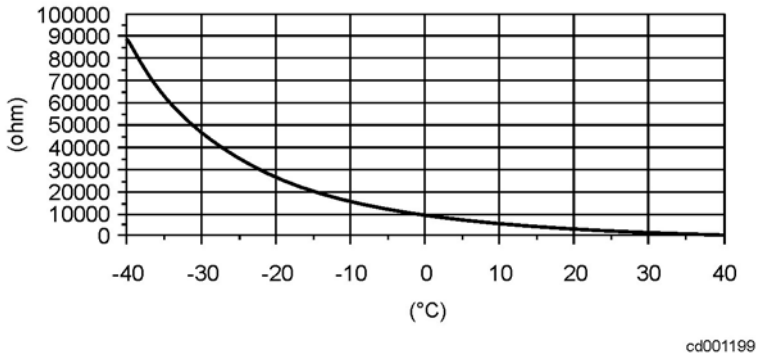
- The display shows cooler temperature sensor faulty.

- The appliance operates with preset cycle when the compressor is powered for 40 minutes and remains off for 40 minutes alternatively.
- The defrosting procedure is activated every about 14 hours.

When the sensor operates again normally, the above described conditions terminate.

Characteristics of the NTC sensor:

T(°C)	ΔT(±°C)	Rn (Ω)
10	±0.6	5337
9	±0.6	5600
8	±0.5	5877
7	±0.5	6171
6	±0.5	6481
5	±0.5	6809
4	±0.5	7156
3	±0.5	7523
2	±0.4	7911
1	±0.4	8322
0	±0.4	8758
-1	±0.4	9218
-2	±0.4	9705
-3	±0.4	10222
-4	±0.5	10770
-5	±0.5	11352
-6	±0.5	11969
-7	±0.5	12624
-8	±0.5	13320
-9	±0.5	14059
-10	±0.5	14845
-11	±0.5	15678
-12	±0.6	16564
-13	±0.6	17506
-14	±0.6	18509
-15	±0.6	19577
-16	±0.6	20715
-17	±0.6	21928
-18	±0.6	23221
-19	±0.6	24600
-20	±0.6	26072
-21	±0.7	27637
-22	±0.7	29307
-23	±0.7	31092
-24	±0.7	32999
-25	±0.7	35039
-26	±0.7	37221
-27	±0.7	39556
-28	±0.7	42056
-29	±0.8	44735
-30	±0.8	47606
-31	±0.8	50668
-32	±0.8	53952
-33	±0.8	57475
-34	±0.8	61258
-35	±0.8	65320
-36	±0.8	69686
-37	±0.8	74381
-38	±0.8	79431
-39	±0.9	84867
-40	±0.9	90721



6.13 Malfunctioning of freezer temperature sensor

If during the normal operation a failure occurs to the freezer air temperature sensor (the signal coming from the sensor is out of range), therefore pushing the function activation button:

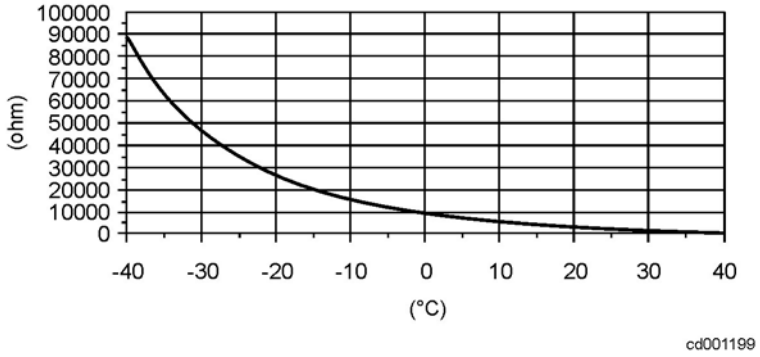
- The display shows freezer temperature sensor faulty.

- The appliance operates with preset cycle when the compressor is powered for 40 minutes and remains off for 40 minutes alternatively.
- The defrosting procedure is activated every about 14 hours.

Characteristics of the NTC sensor:

T(°C)	ΔT(±°C)	Rn (Ω)
10	±0.6	5337
9	±0.6	5600
8	±0.5	5877
7	±0.5	6171
6	±0.5	6481
5	±0.5	6809
4	±0.5	7156
3	±0.5	7523
2	±0.4	7911
1	±0.4	8322
0	±0.4	8758
-1	±0.4	9218
-2	±0.4	9705
-3	±0.4	10222
-4	±0.5	10770
-5	±0.5	11352
-6	±0.5	11969
-7	±0.5	12624
-8	±0.5	13320
-9	±0.5	14059
-10	±0.5	14845
-11	±0.5	15678
-12	±0.6	16564
-13	±0.6	17506
-14	±0.6	18509
-15	±0.6	19577
-16	±0.6	20715
-17	±0.6	21928
-18	±0.6	23221
-19	±0.6	24600
-20	±0.6	26072
-21	±0.7	27637
-22	±0.7	29307
-23	±0.7	31092
-24	±0.7	32999
-25	±0.7	35039
-26	±0.7	37221
-27	±0.7	39556
-28	±0.7	42056
-29	±0.8	44735
-30	±0.8	47606
-31	±0.8	50668
-32	±0.8	53952
-33	±0.8	57475
-34	±0.8	61258
-35	±0.8	65320
-36	±0.8	69686
-37	±0.8	74381
-38	±0.8	79431
-39	±0.9	84867
-40	±0.9	90721

cd001050



cd001199

7 ALARMS

7.1 Freezer compartment temperature alarm

When the freezer compartment reaches -11 °C, the temperature alarm activates:

- The LCD display background becomes red.
- The symbol is displayed. ⚠
- The buzzer sounds.

Push the OK button to deactivate the buzzer.
When normal conditions are reset (after a power failure):

- The acoustic signal deactivates.
- The symbol remains lit. ⚠
- The lighting of the display remains red.

Pushing the OK button:

- The highest temperature reached in the freezer compartment is displayed for 5 minutes.
- The symbol switches off. ⚠
- The red lighting of the display switches off.

8 ACCESSIBILITY

8.1 Freezer compartment

8.1.1 Battery evaporator

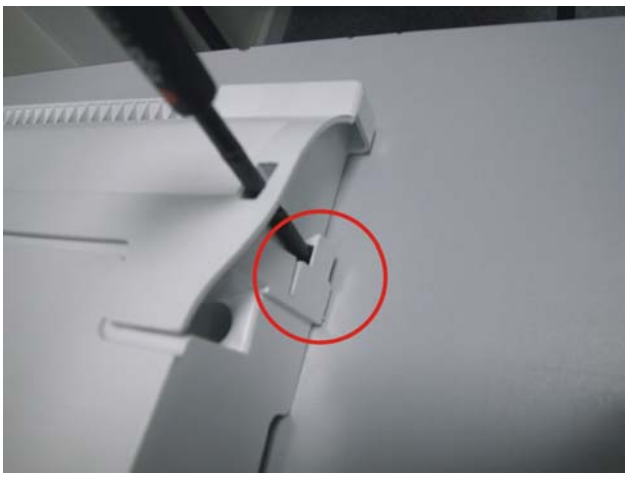
To access the battery evaporator and its components (fan, defrosting heater, door switch, and thermal switches) perform the following operations in sequence:

a. Remove the freezer drawers.
b. Detach the fan and defrosting heater connectors located inside the ZCP connection box (compressor compartment).
c. Cut the wiring tie.

d) Lean the appliance on the rear side (condenser side).

e) Insert a screwdriver into the right hook and release it.

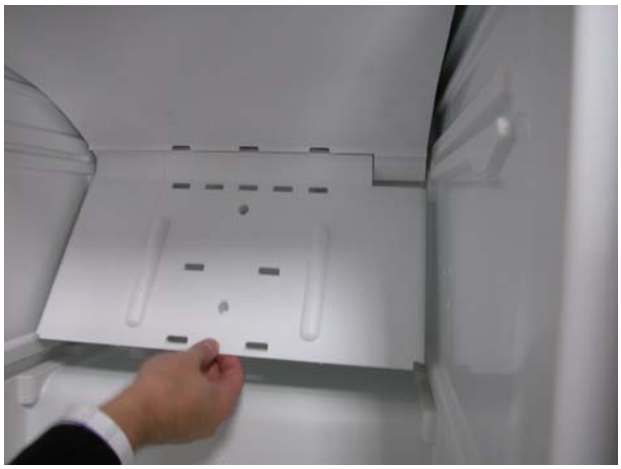
f) Insert a blade inside the F slot and release the internal hook.



g) View of the internal hook.

h) Lift and pull the air vent grid.

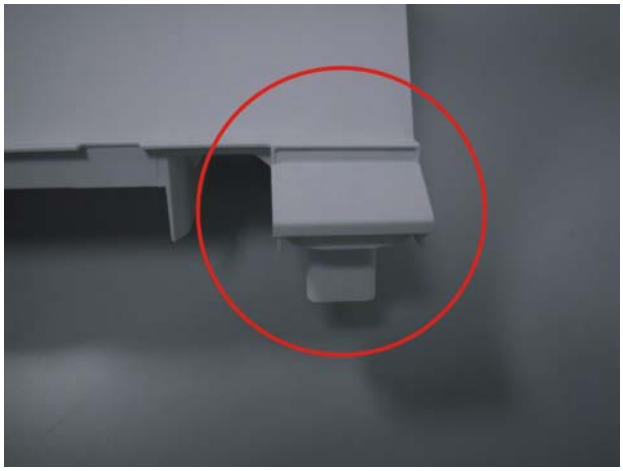
i) Unscrew the 2 fixing screws of the air diffuser.



l) Cut the air diffuser pulling and lifting it up.

m) Remove the 2 fixing screws of the cold module.

n) Pull backward the cold module support releasing the rear water drain duct.



o) View of the rear water drain duct.

p) Release the left hook of the defrosting heater.

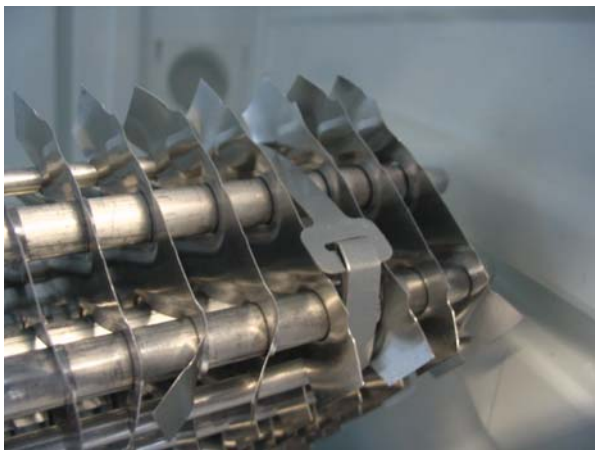
q) Release the right hook of the defrosting heater.

r) Cut the wiring tie of the thermal switches and release them from the evaporator.
Note:
The defrosting and cut-out thermal switches (+8 / +40°C) are connected together, therefore they are not available as single spare parts.

s) Remove the sealing rubber.

t) Remove the wiring fixing tie.

u) Unplug the connector of the thermal switches.



v) The heater is fitted to the evaporator by means of the aluminium ties.

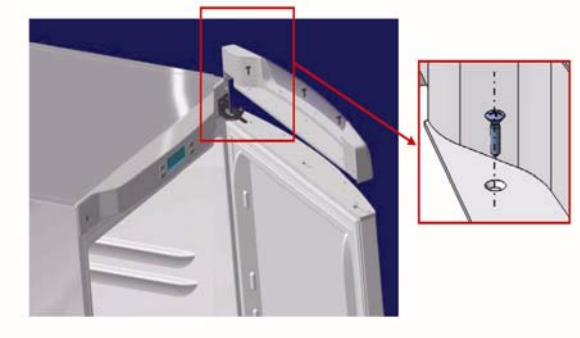
w) Remove the fan extracting it from the evaporator support.

In case of replacement of the fan, it is necessary to ensure that the fan draws in air.

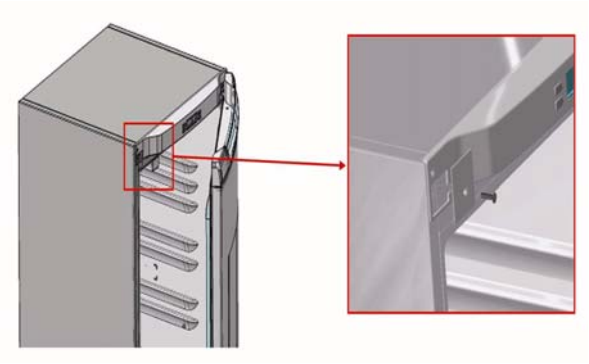
8.2 Control panel

Warning: Unplug the appliance before operating.

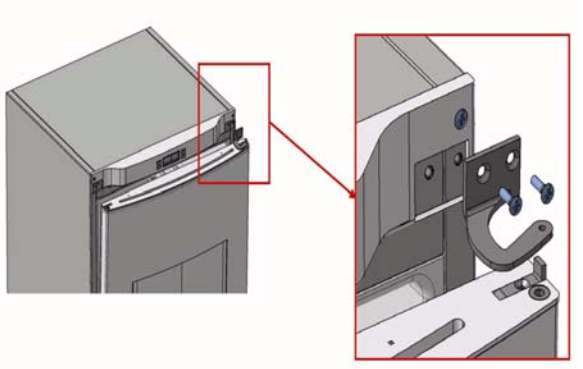
To access the control panel and its components (power/display boards, cooler switches and electric connectors) perform the following operations:



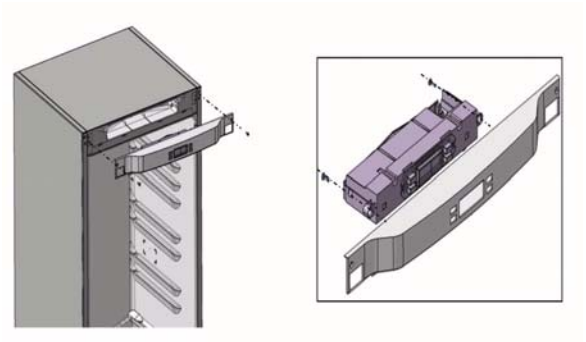
a) Unscrew the 3 fixing screws of the door upper lid.



b) Remove the hinge cover unscrewing the fixing screw.



c) Remove the door unscrewing the upper hinge.



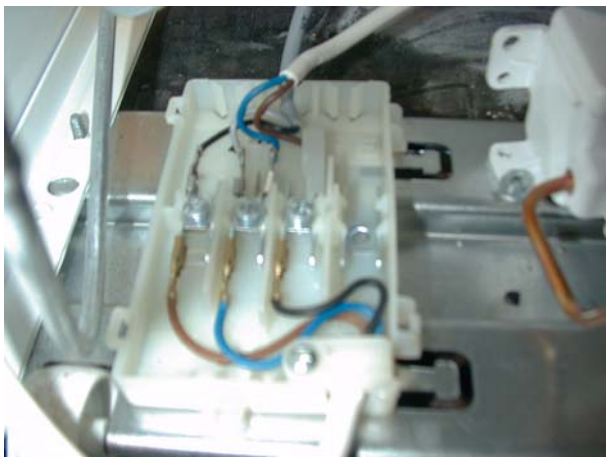
d) Unscrew the 2 fixing screws of the control panel.

8.3 Compressor compartment

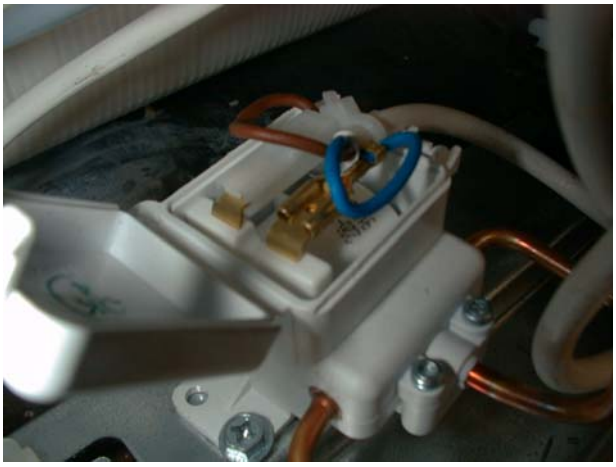
The following components are located in the compressor compartment:

- compressor
- ZCP terminal box
- electric valve

a) Remove the black cover from the ZCP terminal box releasing the 2 side hooks.



b) View of the internal components.
- fan
- defrosting heater



c) View of the internal connections:
- electric valve

d) View of the internal components:
- compressor terminal box

9 TROUBLESHOOTING

Warning: Unplug the appliance before operating.

9.1 Excessive ice formation on the battery :

If the rubber valve remains open, the humid air outside the freezer compartment is ducted inside and it accumulates too much ice on the battery.

The valve remains open if there are foreign bodies or if it looses elasticity; therefore, in the first case the foreign bodies must be removed, while in the latter the rubber valve must be replaced.

9.2 Failed defrosting:

In case of failed defrosting, the possible causes are:

Sequence no.	POSSIBLE CAUSES	HOW TO CONTROL	SOLUTION
1.	The defrosting heater is interrupted	Unplug the appliance, remove the connector of the heater and verify with the tester the correct resistance value to the connector clamps	If the resistance value does not correspond to the technical data, replace the heater
2.	One or both switches of the thermal protectors are open	Frost the battery, then detach the power plug of the appliance, remove the connector of the thermal switches and verify with the tester the correct resistance value to the connector clamps	If the resistance value does not correspond to 0 (zero Ohm) replace the thermal switches assembly

10 SPECIAL FUNCTIONS

10.1 Service Mode

10.1.1 Starting Service Mode

To start the procedure, perform the following operations:

1. Connect the plug to the socket.
2. Switch on the appliance with the ON/OFF button.
3. Open the doors of the appliance.
4. Remove the plug from the socket.
5. Connect the plug to the socket.
6. Wait 3 seconds, afterwards hold down the OK button for 5 seconds (this operation must be executed after the first 3 seconds and within the first 12 seconds after the appliance has been plugged in again).

The confirmation of the procedure start occurs with the acoustic signalling of the buzzer which emits a long beep and with the lighting up of all segments of the display.

10.1.2 Exiting Service Mode

The procedure terminates when one of the following operations is carried out:

a. The plug is detached from the socket and reconnected.
b. 40 minutes have elapsed and no button has been pushed.
c. The last phase of the procedure has been reached.

10.1.3 Functions of the Service Mode

Press the OK button to skip to the following phase of the procedure.

Prsss the “ON/OFF” button to activate/deactivate the loads (compressor, defrosting heater, lamp, fan and air flow regulator damper).

List of the phases of the SERVICE MODE:

1. All segments of the display are on.
2. All segments of the displays are off.
3. The number 0 is shown on the display and the load controlled by ACS TH1 [compressor] is checked.
   To activate/deactivate the load press the button “ON/OFF” (the load is activated when the rapid freezing SUPER function symbol lights up).
4. The number +1 is shown on the display and the load controlled by ACS TH2 [defrosting heater] is checked.
   To activate/deactivate the load press the button “ON/OFF” (the electric valve switches from one side to the other and it is possible to hear a click).
5. The number +2 is shown on the display and the load controlled by ACS TH3 [electric valve] is checked.
   To activate/deactivate the load press the button “ON/OFF” (the load is activated when the rapid freezing SUPER function symbol lights up).
6. The number +3 is shown on the display and the load controlled by ACS TH4 [fan] is checked.
   To activate/deactivate the load press the button “ON/OFF” (the load is activated when the rapid freezing SUPER function symbol lights up).
7. The number 00 (= damper closed) or 0F (= damper open) is shown on the display and the air flow regulator (damper) is checked.
   To activate/deactivate the load press the button “ON/OFF”

   Note:
   When the procedure skips to the following phase pressing the button OK, the load keeps its status (for example, if the compressor had been activated, it will remain on also in the subsequent phases); in this way it is possible to check the loads simultaneously.

8. Check of the doors.
   The display digits correspond to the doors: the unit digits correspond to the cooler door, while the ten digits correspond to the freezer door.
   If the relative door is closed, the displayed digit is 0 otherwise is 1.
9. Check of the counter.
   The display shows an increasing number at intervals of 1 second.
   This is a counter used by the board for its internal management.
   At the same time, the display background colour changes from red to light blue.
10. Check of the temperature sensors.
    The display shows one of the following codes:

Code	Description
E0	No error
E1	Evaporator sensor damaged
E2	Room temperature sensor damaged (installed on the display board)
E4	Room temperature sensor damaged (installed on the power board)
E5	0 degree compartment sensor damaged

Note:
The errors regarding the cooler and freezer air sensors are already displayed during the normal operation.

At this point all the phases necessary to check the loads have been displayed, therefore it is advisable to interrupt the procedure of the SERVICE MODE unplugging and replugging the appliance.

Note:

If you do not want to interrupt the SERVICE MODE, the procedure continues with some phases dedicated exclusively to the factory, therefore they have not to be considered.
Also in this case the exit from the SERVICE MODE is carried out unplugging and replugging the appliance.

10.2 DEMO MODE

The DEMO MODE function is intended only for the commercial activity and not for the user.

The internal temperature of the appliance, measured by the air sensors, must be higher than +10 °C so as the function can be activated.

10.2.1 Start DEMO MODE

To start the procedure, hold down the ON/OFF button and the function selection button for more than 5 sec.

The display digits flash every about 4 seconds.

10.2.2 Exit DEMO MODE

To exit the procedure, hold down the ON/OFF button and the function selection button for more than 5 seconds or unplug the appliance.

10.2.3 Functions of the DEMO MODE

The procedure is used only for show purposes in the selling points and allows selecting the temperatures without activating the loads (compressor, fan, defrosting heater and electric valve).

The display shows:

- + 5 °C for the cooler compartment (flashing display);
- -18 °C for the freezer compartment (flashing display).

By pushing the temperature regulation button, the display shows the temperatures that can be set (flashing display).

By pushing the function selection button it is possible to show the various functions without activating them.

The internal light switches on when the cooler door is opened.

By pushing the ON/OFF button it is possible to simulate the switching off of the appliance (the lamp is off).

11 DISPLAY SYMBOLS

DISPLAY	DIGITS	DESCRIPTION
	NOT FLASHING	It indicates the room temperature with normal function
	NOT FLASHING	It indicates the cooler temperature with normal function [from +2 to +8]
	NOT FLASHING	It indicates the freezer temperature with normal function [from -15 to -24]
	NOT FLASHING	It indicates the HOLIDAY function of the cooler compartment [+15 °C]
	FLASHING	It indicates the freezer temperature in alarm condition
	NOT FLASHING	It indicates the rapid drink cooling function (with RDC device)
	IN ANIMATION	It indicates the SUPER function (quick freeze)
	NOT FLASHING	It indicates the ECO function (energy saving)

	NOT FLASHING	It indicates the SHOPPING function (rapid cooling)
	NOT FLASHING	It indicates the child lock function
	NOT FLASHING	It indicates the malfunctioning of cooler air temperature sensor
	NOT FLASHING	It indicates the malfunctioning of freezer air temperature sensor
	NOT FLASHING	It indicates incompatibility between the electronic boards Remedy: check the spare part nos. of the electronic boards
	NOT FLASHING	It indicates an Eeprom parameter writing/reading error Remedy: replace both electronic boards (power and display)