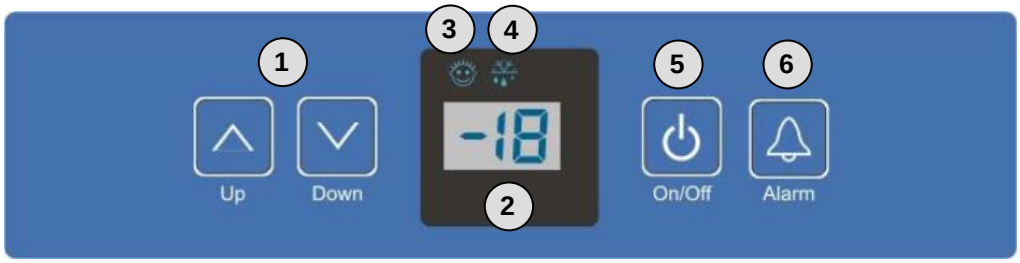
# Appliance Documentation

## GGv 5010/5060 from Index 40
## GGv 5810/5860 from Index 40

Commercial freezer, ventilated with automatic defrosting

## Contents

# 1.0 Operating and control elements




**1 : Temperature adjustment buttons**
**2 : Temperature display**
**3 : Display for activated child lock**
**3 : Display for activated defrosting**
**4 : ON/OFF button**
**5 : Alarm OFF button**

# 2.0 Functions at a glance

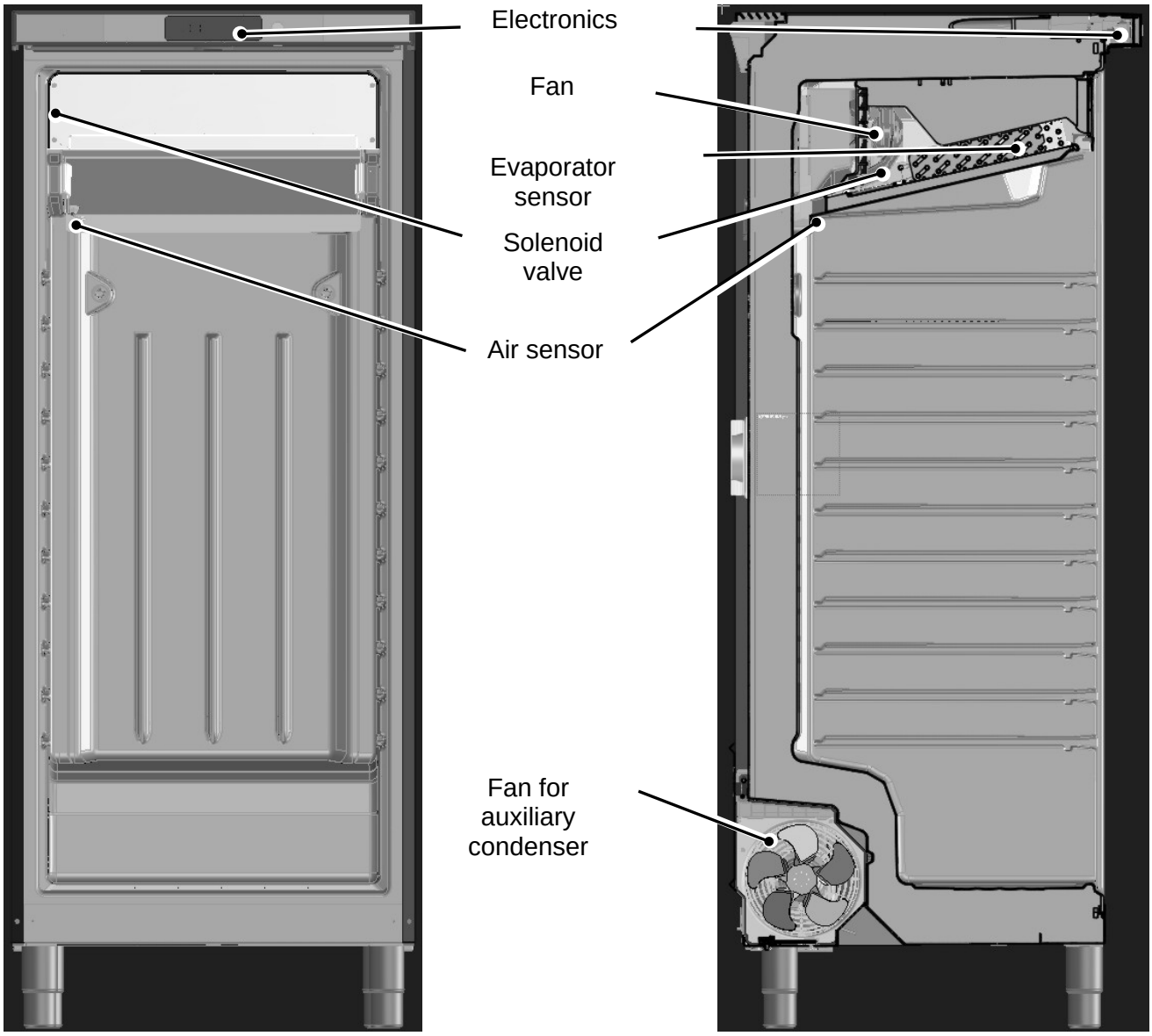
| | |
|---|---|
| **Control:** | Electronics |
| **Temperature display:** | Actual value |
| **Temperature range:** | -14°C to -28°C |
| **Temperature alarm:** | Visual and audible |
| **Door alarm:** | Audible |
| **Fan:** | Present |
| **Defrosting:** | Automatic (hot gas) |
| **Interior light:** | Not present |
| **Service menu:** | Present |
| **Compressor:** | Standard |
| **Solenoid valve refrigeration circuit:** | Featured (for defrosting) |

# 3.0 Description of appliance

The GGv models are dynamically cooled upright freezers with automatic hot gas defrosting and a series 6 control system with actual value display.

The appliance has a lamellar evaporator with fan and solenoid valve for hot gas defrosting. Two sensors, an air sensor and an evaporator sensor, see to the control and automatic defrosting. A safety temperature limiter protects the appliance against excessively high temperatures during the defrosting phase.

## 3.1 Sensor positions, schematic diagrams



# 4.0 Main components and their functions

## 4.1 Electrical components and functions

| | | | |
|---|---|---|---|
| **Electronics** | | | |
| **Type:** | Series 6 electronic control system | | |
| **Components:** | Control and power PCB | | |
| **Setting range:** | -14°C to -28°C | | |
| **Display range:** | -50°C to -1°C | | |
| **Functions** | | | |
| **Temperature alarm:** | When: | Set value:<br>Alarm value:<br>Set value:<br>Alarm value: | -14°C to -24°C<br>4K warmer than set value.<br>-25° C to -28 °C<br>-20°C |
| | Audible: | 4 beeps (suppressed during start-up) | |
| | Visual: | Flashing temperature display | |
| | Alarm is output with a 30-minute delay when the air sensor has reached the alarm value (e.g. set value: -18° C, actual value at -14° C for 30 minutes → alarm). | | |
| | On start-up the temperature display flashes until the switch-off value is reached, the audible alarm is suppressed. | | |
| **Door alarm:** | When: | door open for longer than 3 minutes. | |
| | Audible: | 3 beeps | |
| **Defrosting:** | Activation: | - During start-up after 3 hours cumulative compressor running time.<br>- After a cumulative compressor running time of 3 to 9 hours maximum, depending on the number/duration of the door openings.<br>- Manually via the customer menu. | |
| | Function: | Hot gas defrosting (see chap. 4.2.1.2.).<br>The defrost water is collected in the evaporator basin and channelled into the evaporation tray on the compressor. | |
| | End: | The defrosting phase is ended thermally as a rule (+10°C). The compressor will start up after a drip-off time of 10 minutes. The evaporator fan will start up as soon as the evaporator is at least as cold as the air temperature.<br>If no thermal ending takes places, the defrosting phase is terminated after 120 minutes and the error message "Ad" displayed. | |
| | Display: | The defrost symbol is illuminated during the defrosting phase.<br>During the defrosting phase, the value last displayed before defrosting started is retained for 45 minutes. | |
| **Child lock:** | Activated by the customer menu (see operating instructions).<br>When the child lock is activated, the ON/OFF button and the temperature adjustmer buttons are inactive. The remaining functions are available for unrestricted use. | | |

## Sensors

**Air sensor:**

Position: at the rear left on the underside of the evaporator module.

Function:
- Switches the compressor ON/OFF.
- Generates the display value.

**Evaporator sensor:**

Position: Inserted into lamellar evaporator.

Function:
- Ends the defrosting phase.
- Together with the air sensor after defrosting signals the enable for fan ON.

## Switch

**Door switch:**

Position: In front panel.

Type: Reed PCB

Contact type: Make contact

Function: Activation via magnet on the door, magnet is replaceable.

**Switching signal when:**

| | | |
|---|---|---|
| **door closed:** | Door alarm | OFF |
| **door open:** | Door alarm | ON |

**Temperature fuse:**

Position: on the left side of the evaporator.

Type: safety fuse

Function: serves purely as a safety device!
Triggers and thus interrupts voltage supply to the compressor when the evaporator heats up to over +84°C.

## Loads

**Compressor:**

Function:

**ON:** Air sensor switch-on value.

**OFF:** Air sensor switch-off value.

**Special features:** On-delay time (8 minutes) must have elapsed.

**Solenoid valve:**

Position: in the evaporator module.

Type: 2/1 valve

Function: opens when the defrosting phase starts and channels the hot gas directly to the evaporator

**Fan:**

Position: in the evaporator module, at the rear centre

Function:

| Sensors | Set value | Compresso | Door | Fan |
|---|---|---|---|---|
| Switch-on value | -14 to -21°C | OFF | CLOSED | **OFF** |
| Switch-on value | -22 to -28°C | OFF | CLOSED | **ON** |
| Switch-on value | -14 to -28°C | ON | CLOSED | **ON** |
| Switch-on value | -14 to -28°C | ON | OPEN | **OFF** |
| Switch-off value | -14 to -28°C | OFF/ON | CLOSED/OPEN | **OFF** |

**Condenser fan:**

Position: beside the condenser

Function: cools the condenser and runs parallel to the compressor

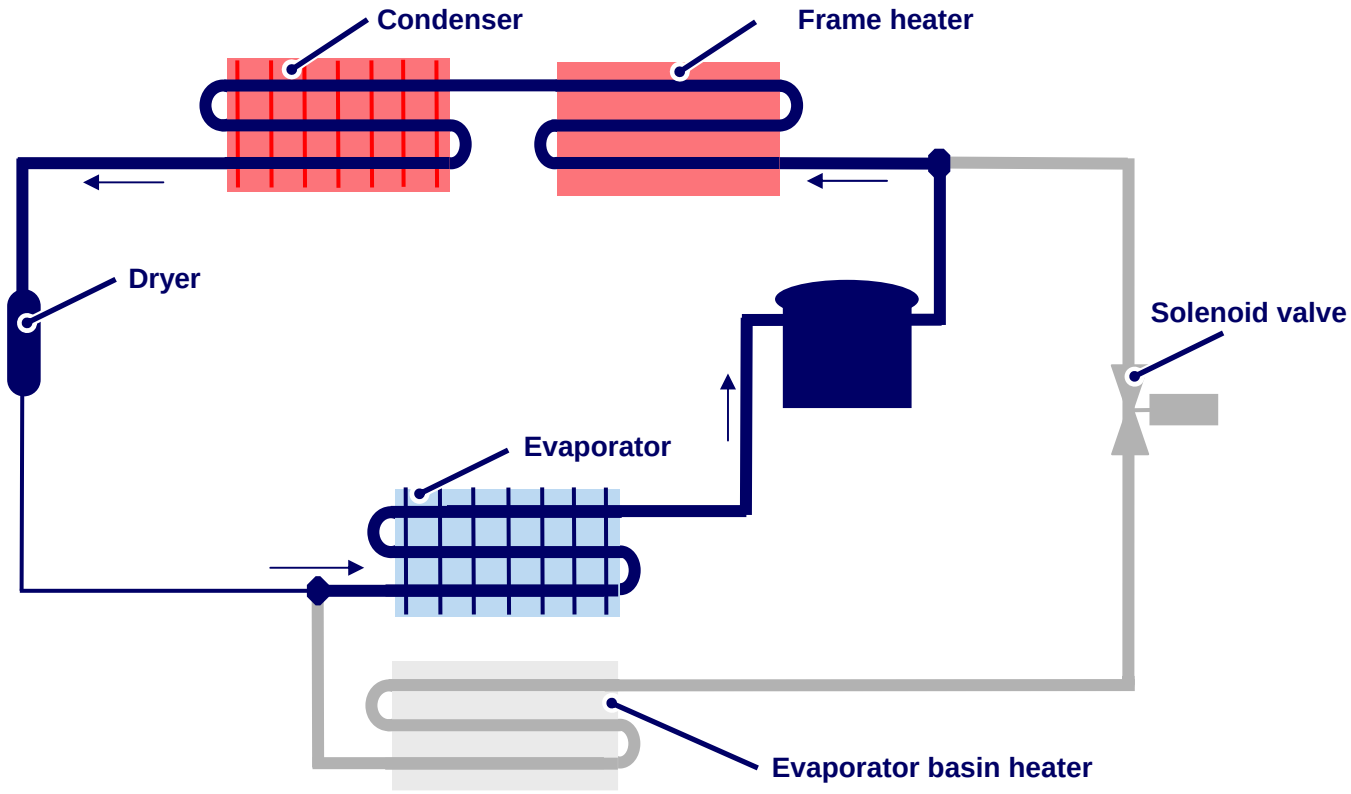
## 4.2 Refrigeration components and functions

| | | |
|---|---|---|
| **Compressor:** | 1 standard compressor | |
| **Evaporator:** | Type: | lamellar evaporator. |
| | Type of installation: | as module under the appliance lid |
| | Injection point: | rear |
| | Flow sequence: | back to front |
| **Frame heater:** | Position: | foamed-in in the region of the frame. |
| | Type: | hot gas heater |
| Condenser: | Type: | wire tube condenser |
| | Type of installation: | suspended freely at the rear |
| **Auxiliary condenser:** | Type: | coil condenser |
| | Type of installation: | in the compressor recess |
| **Solenoid valve:** | 2/1 valve | |
| **Refrigerant** | R290 | |

### 4.2.1 Function principle

#### 4.2.1.1 Refrigeration

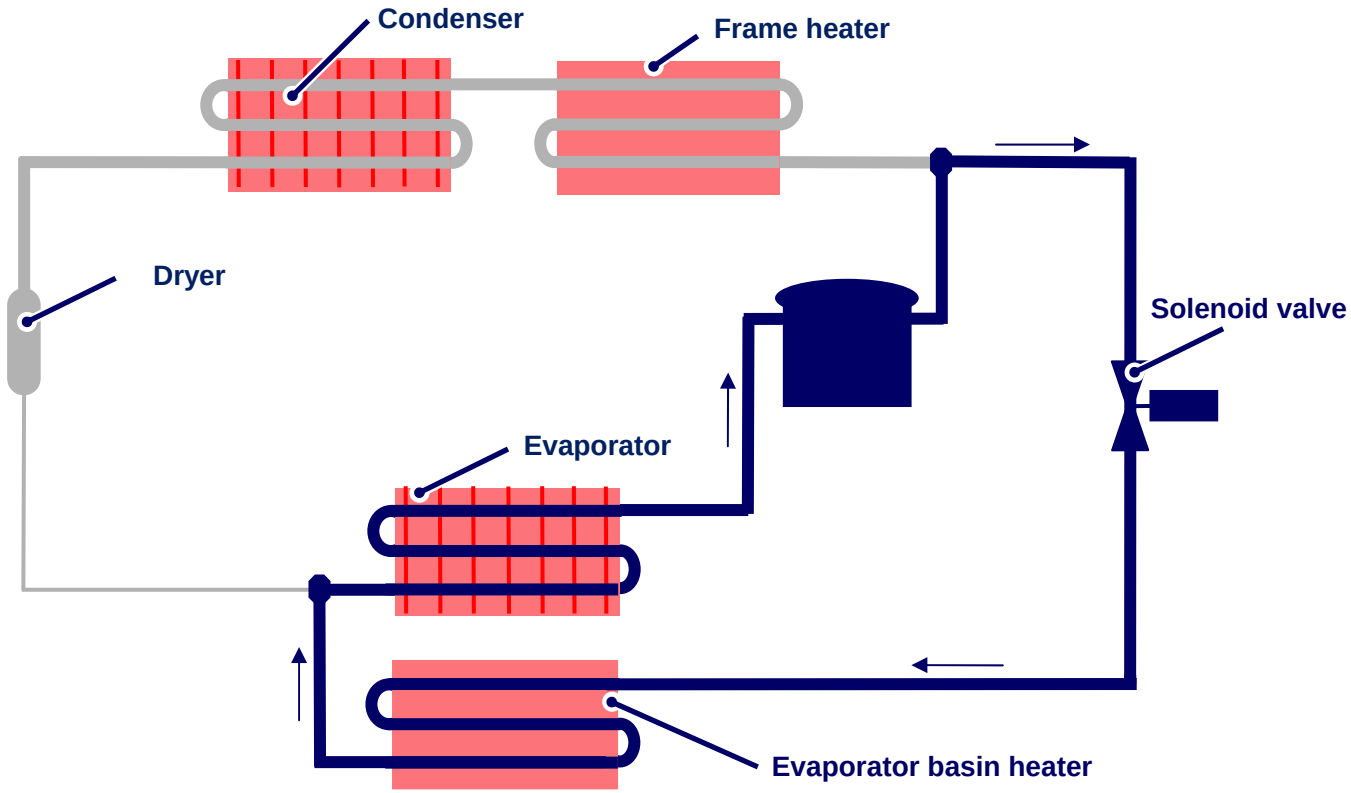
The solenoid valve is closed. The refrigerant runs through the customary circuit.



### 4.2.1.2 Hot gas defrosting

Defrosting of the evaporator is by hot gas.

When the defrosting phase is started, the compressor runs on and the solenoid valve opens. Hot gas flows over the bypass into the evaporator basin heater and evaporator. The refrigerant is then cooled down briefly by the ice-encrusted evaporator and is thus liquefied and then subsequently evaporated in the evaporator capsule by the heat of the latter. The gaseous refrigerant which is heated by the dissipated heat from the compressor is then pumped through the circuit.



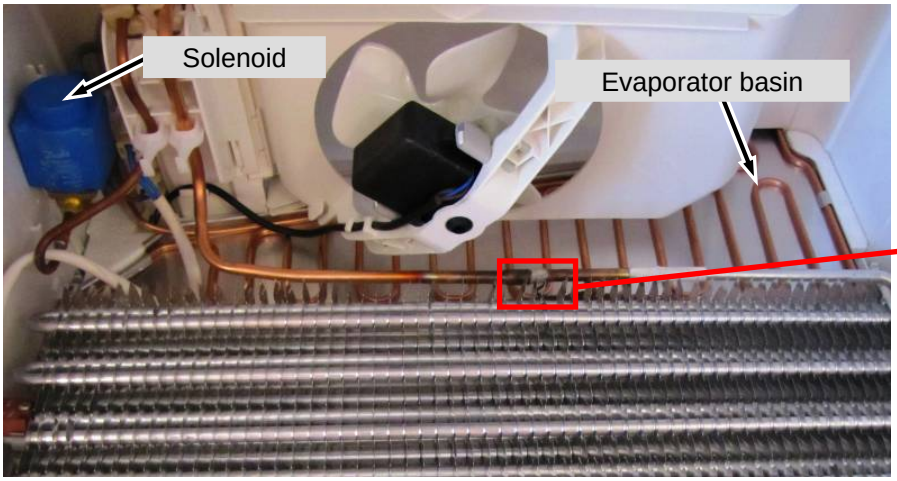




**Fig. 4.2.1.2/ 1**

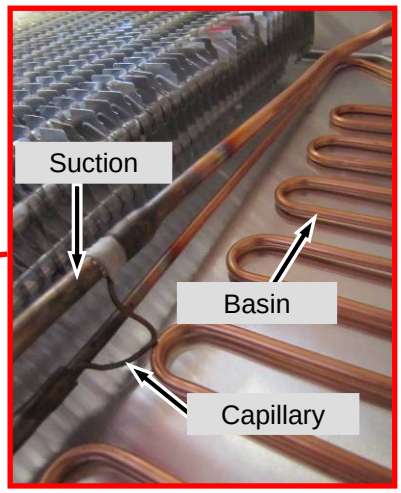



**Fig. 4.2.1.2/ 2**

## 4.3 Miscellaneous

### 4.3.1 Door closing mechanism

At an opening angle of between 0 and 30° the hinge bushing slips over the inclined hinge pin so that the door closes automatically. At an opening angle of more than 30° the door remains open.

**Fig. 4.3.1/ 1** Opening angle > 30°

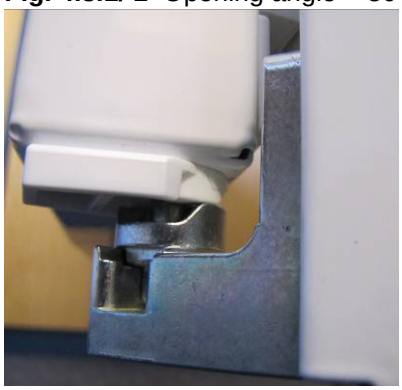


**Fig. 4.3.1/ 2** Opening angle < 30°

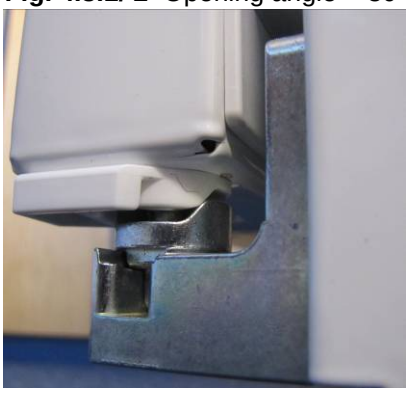


**Fig. 4.3.1/ 3** Opening angle = 0°

### 4.3.2 Pressure compensating valve

The pressure compensating valve is combined with the defrost water drain

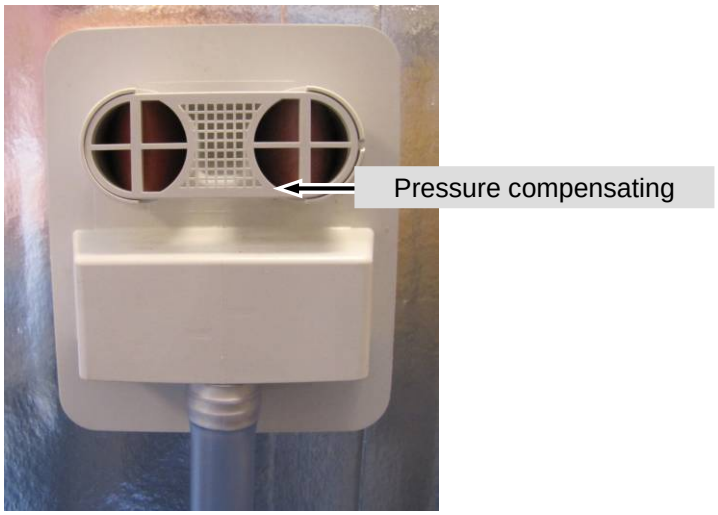



**Fig. 4.3.2 / 1**

### 4.3.3 Height-adjustable feet

The height-adjustable feet are screwed on from underneath with a socket head screw. To increase the stability of the two rear height-adjustable feet, reinforcement brackets are also screwed in there.

**Fig. 4.3.3/ 1**

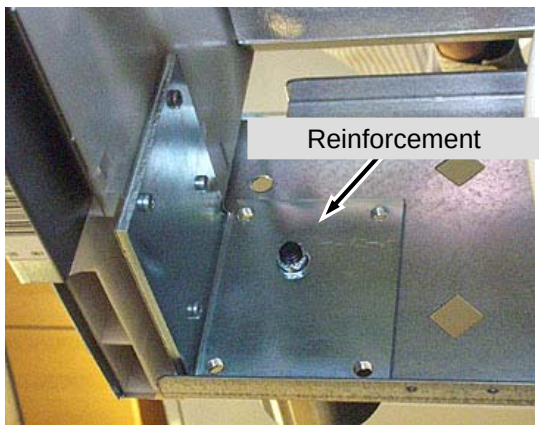



**Fig. 4.3.3/ 2**

# 5.0 Assembly instructions / replacement of parts

## 5.1 Electronic control system

**Covers:** - unclip the covers on the underside of the front housing and remove the fastening screws.
Note: The cover on the door side is easier to remove if the door is taken off first (remove fastening screw, slide the door out of the turn hinge at the side and remove in a downward direction.

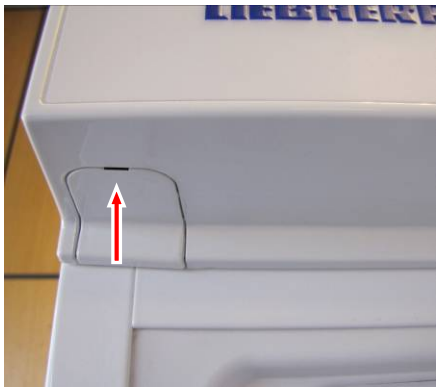


**Fig. 5.1/ 1**

**Fig. 5.1/ 2**

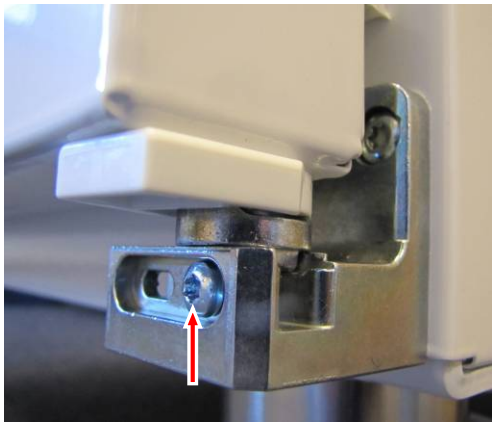


**Fig. 5.1 /3**

**Front casing:** - Draw the front housing forwards and raise it.
- Unplug the connector from the power PCB and remove the front housing.

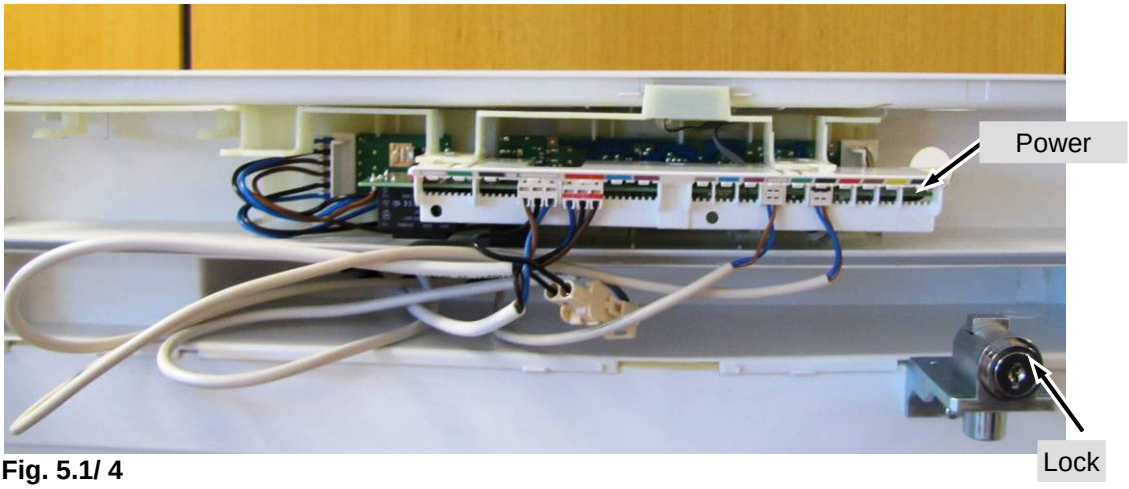



**Fig. 5.1/ 4**

**PCBs:**

- remove the marked locks, take off the PCB edge connectors and remove the PCB carrier
- Unclip the control PCB carrier from the front housing.

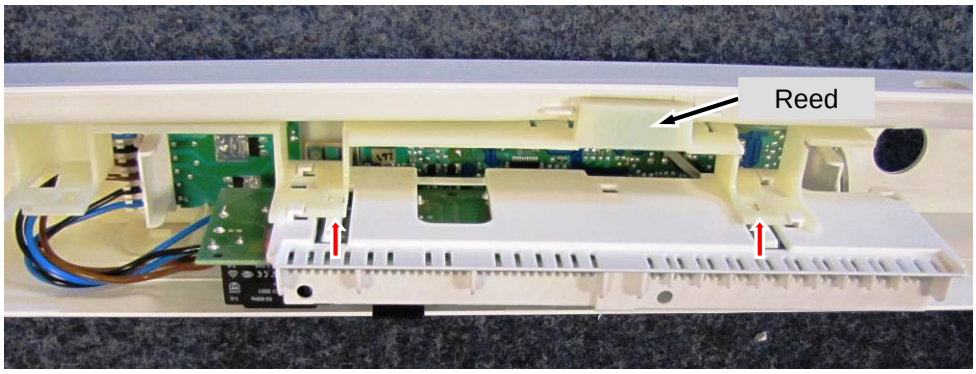



**Fig. 5.1/ 5**

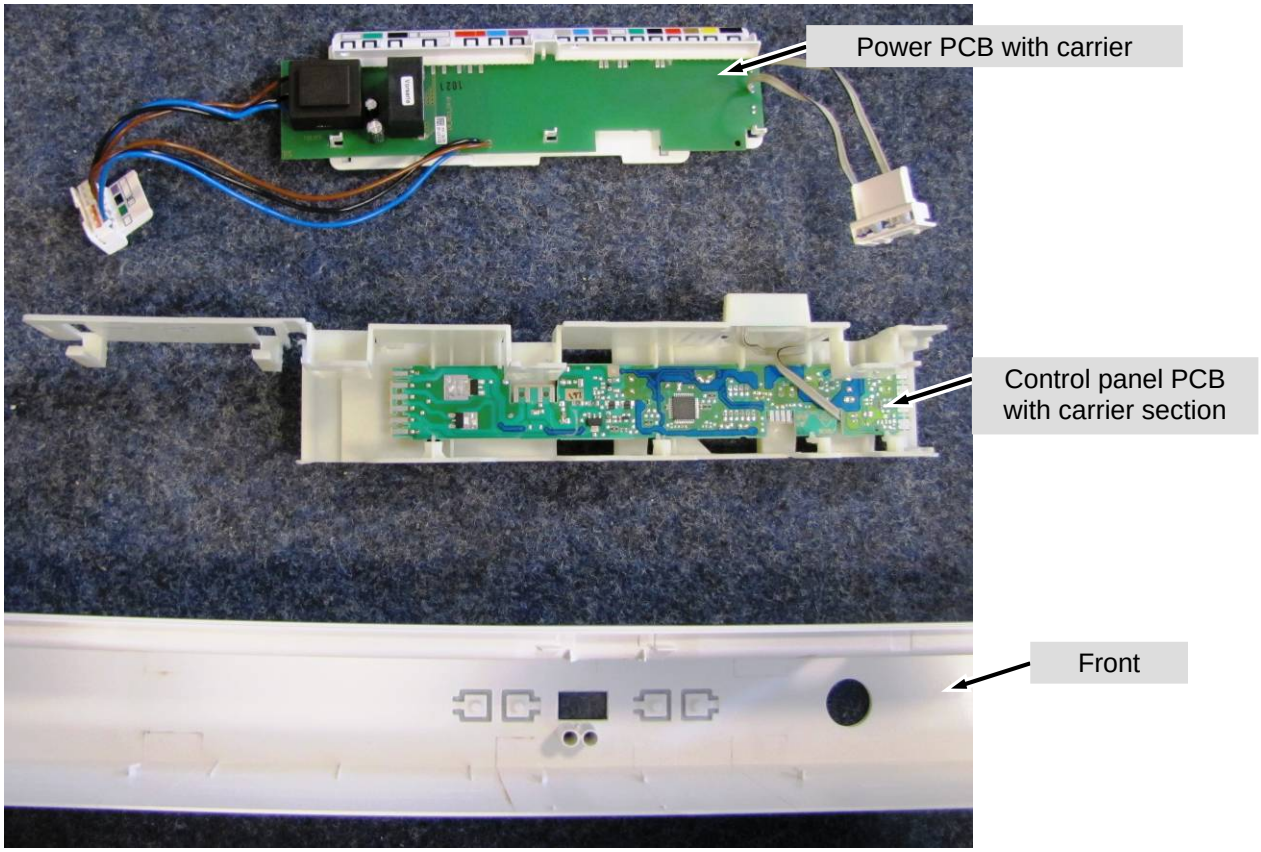



**Fig. 5.1/ 6**

## 5.2 Remove evaporator module

**Air guide** Undo bayonet screws and remove from air guide plate.

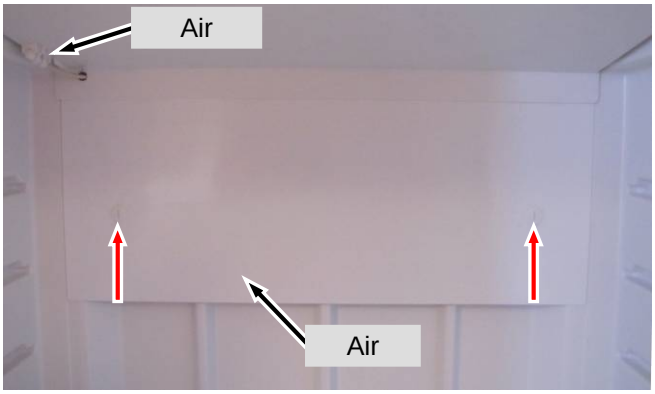



Fig. 5.2/ 1

Fig. 5.2/ 2

**Front panel:** - remove stoppers and fastening screws.
- Unclip front panel (pull down and out to the front).


Fig. 5.2 /3


Fig. 5.2/ 4

**Catches:** - remove the left and right catches (push down at the front with a screwdriver until the locating lug unclips – then simply take off in an inward direction).

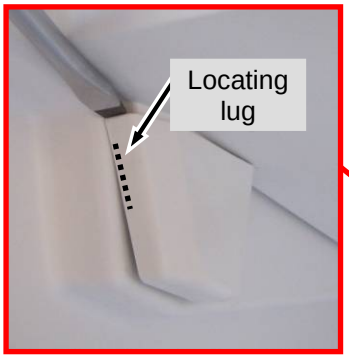



Fig. 5.2/ 5

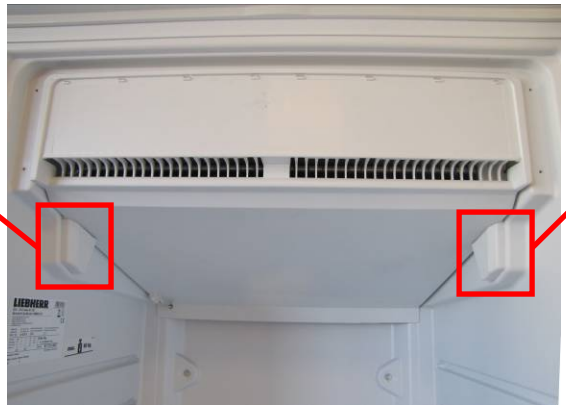


Fig. 5.2/ 6


Fig. 5.2/ 7

**Module**

- Pull module forwards, fold downwards and place on grid.
- Remove adhesive strips (they are no longer required for re-assembly).
- Pull the evaporator sensor out of the groove or feedthrough.
  First lift polystyrene part at the front and then draw it off.

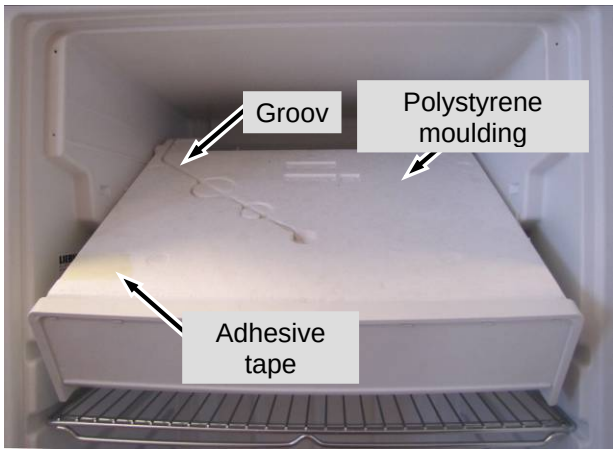



**Fig. 5.2/ 8**

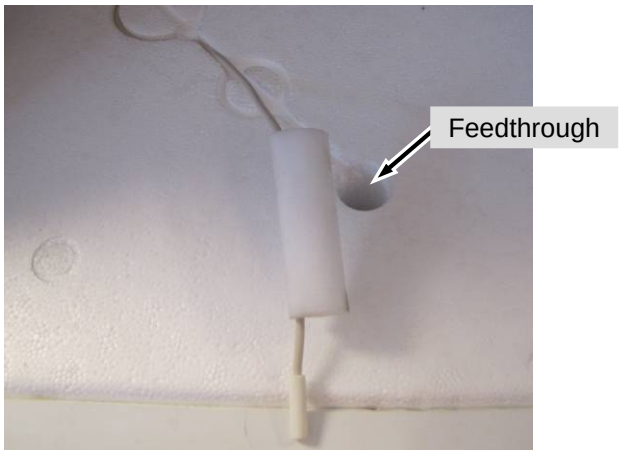



**Fig. 5.2/ 9**

Connector strip

- Unhook locating lug from the connector strip and pull up the strip.
- Electrical consumers are then easier to unplug.

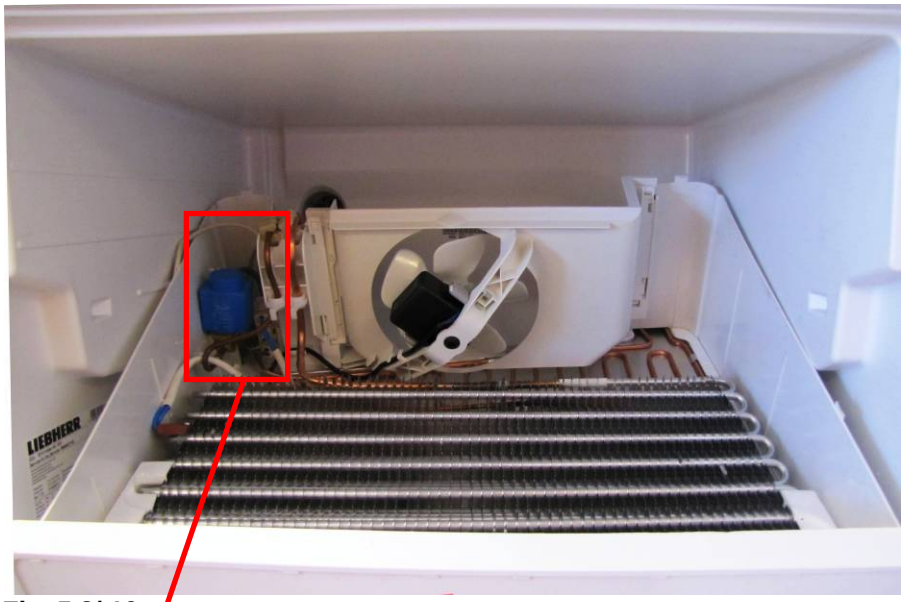


**Fig. 5.2/ 10**

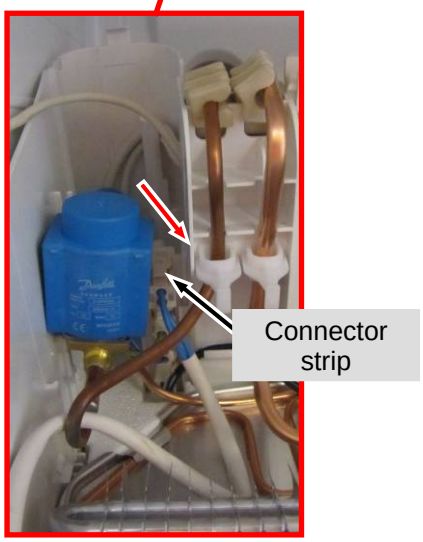



**Fig. 5.2/ 11**

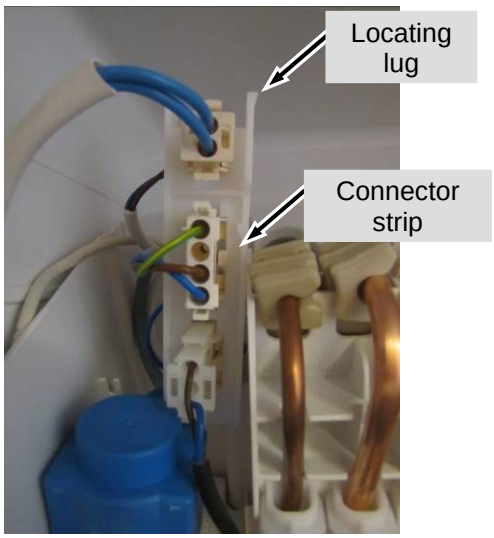



**Fig. 5.2/ 12**

## 5.3 Sensor replacement

**Air sensor:**

- Clip sensor out of the holder and thread it through the opening.
- Then pull sensor out through the rear wall and replace with universal sensor.

Note: The universal sensor connector must be positioned on the appliance rear – not in the interior!


**Fig. 5.3/ 1**


**Fig. 5.3/ 2**

**Evaporator sensor:**

- Pull sensor out through the rear wall and replace with universal sensor.

Note: The universal sensor connector must be positioned on the appliance rear – not in the interior!

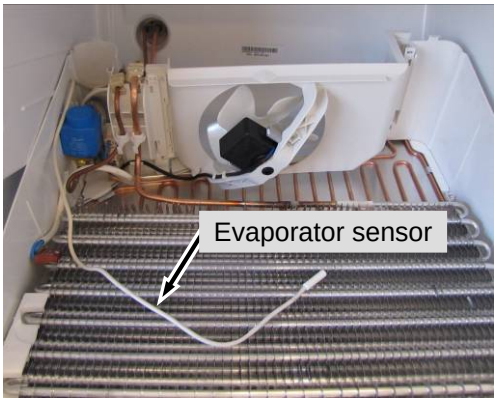



**Fig. 5.2/ 3**


**Fig. 5.2/ 4**

## 5.4 Interior fan

**Connector**

- Unplug fan on the connector strip.
- Unhook fan and mount and remove towards the rear.

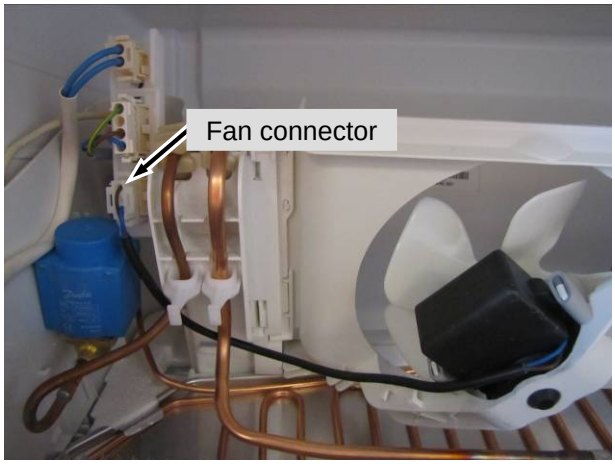



**Fig. 5.4/ 1**

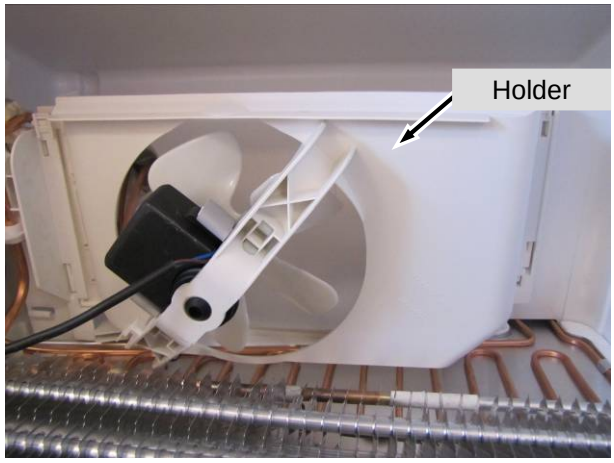



**Fig. 5.4/ 2**

**Fan mount:**

- Remove blades.
- Pull off rubber rings and unclip the fan holder part of the fan.

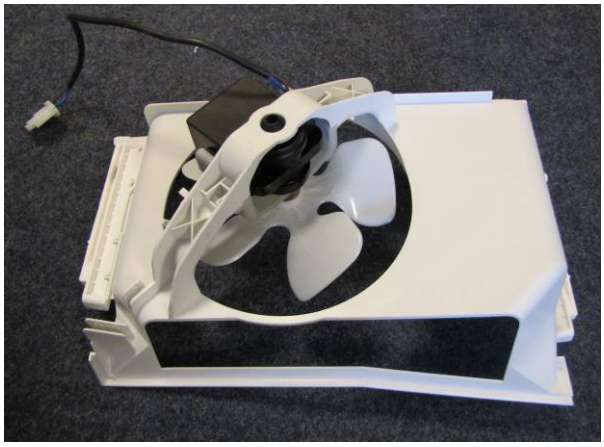


**Fig. 5.4/ 3**

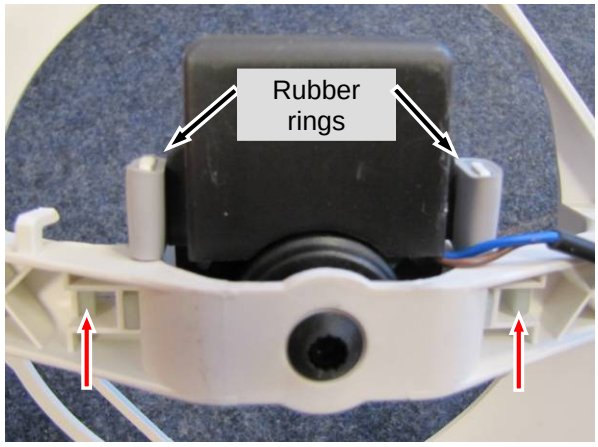



**Fig. 5.4/ 4**

**Recess for mount:**

- Place the rear of the mount into the recess and hook the mount in.

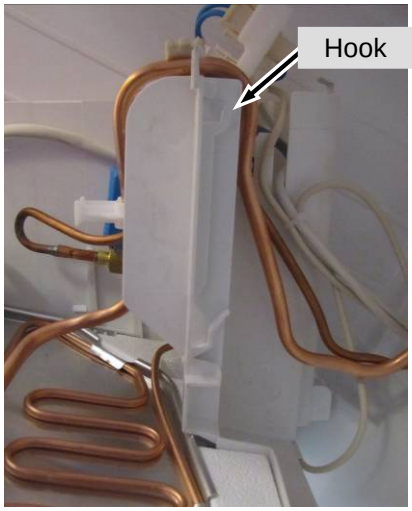



**Fig. 5.4/ 5**

**Fig. 5.4/ 6**

## 5.5 Safety temperature limiter (STL)

**STL**

- Unplug STL on the connector strip.
- Remove fastening screws and then take out STL.

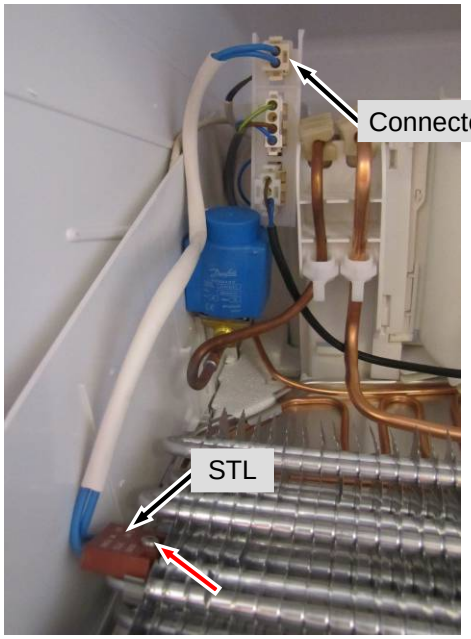



**Fig. 5.5/ 1**

## 5.6 Solenoid valve

**Solenoid valve:**

- Unplug solenoid valve on the connector strip.
- Lift out the coil casing

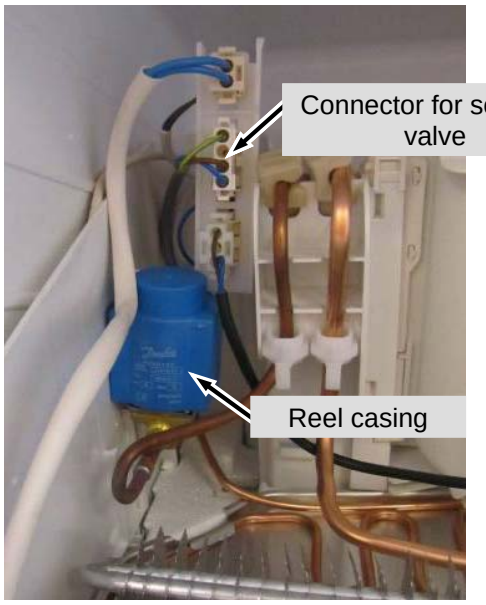



**Fig. 5.6/ 1**

**Fig. 5.6/ 2**

## 5.7 Condenser fan

**Cover:**

- remove fastening screws and cover.
- Pull out holder

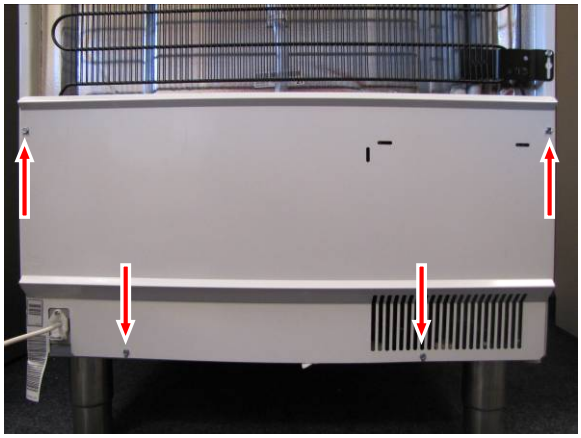


**Fig. 5.7/ 1**

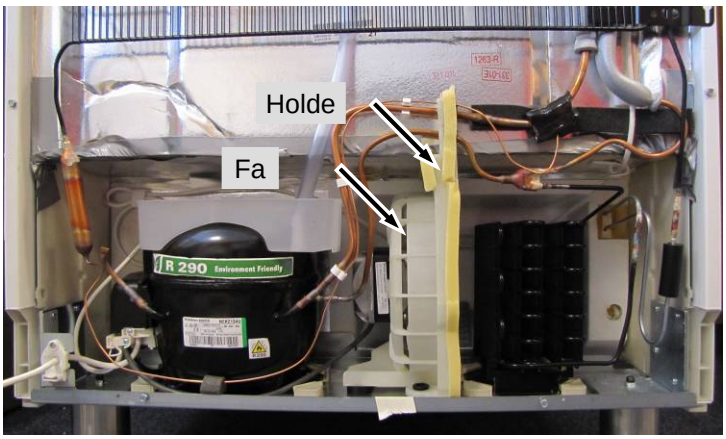



**Fig. 5.7/ 2**

**Fan:**

- Draw out locking pins.
- Remove fan and mount.

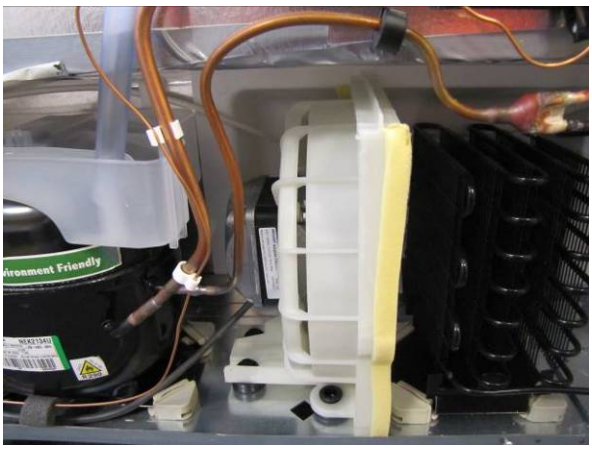


**Fig. 5.7/ 3**


**Fig. 5.7/ 4**

# 6.0 Technical data

| | | |
|---|---|---|
| **Solenoid valve** | Wattage: | 12 watts |
| | Voltage: | 220 - 240 V |
| **Evaporator fan:** | Wattage: | 6 W |
| | Speed: | 1350 rpm. |
| | Voltage: | 220 – 240 V |
| **Condenser fan:** | Wattage: | 35 W |
| | Speed: | 1300 rpm. |
| | Voltage: | 220 – 240 V |
| **Temperature limiter:** | Trigger temp.: | 84°C |

Sensor values:

| Temperature °C | Resistance value kOhm |
|---|---|
| +35 | 3.1 |
| +30 | 3.8 |
| +25 | 4.7 |
| +20 | 5.9 |
| +15 | 7.3 |
| +10 | 9.3 |
| +5 | 11.9 |
| 0 | 15.3 |
| -5 | 19.8 |
| -10 | 25.9 |
| -15 | 34.1 |
| -20 | 45.3 |
| -25 | 60.8 |
| -30 | 82.3 |
| -35 | 112.8 |

# 7.0 Hidden functions

## 7.1 Manual activation of the defrosting phase (customer menu)


| Step | Display | Operation | Display following operation | INFO |
|---|---|---|---|---|
| 1 | Actual value | Hold down "Alarm" for 3 seconds | "c" flashes | Customer menu activation |
| 2 | "c" flashes | Press "Up" once | "H" flashes | Activate defrosting |
| 3 | "H" flashes | Press "Alarm" | "A" flashes + defrost symbol | Defrosting activated (stops automatically) |

## 7.2 Service menu

The service menu may be used by service technicians only.


### 7.2.1 Demo mode

| Step | Display | Operation | Display following operation | Testing option / Info |
|---|---|---|---|---|
| **Activating demo mode** | | | | |
| 1a | Actual value | Press "Alarm" and "ON/OFF" simultaneously for 3 seconds | "d1" flashes | Service menu activation |
| 2a | **"d1" flashes** | Press "Alarm" | Set value | **Demo mode ON** |
| **Deactivating demo mode** (demo mode can be deactivated only using the service menu, not by OFF/ON.) | | | | |
| 1B | Set value | Press "Alarm" and "ON/OFF" simultaneously for 3 seconds | "d0" flashes | Service menu activation |
| 2b | **"d0" flashes** | Press "Alarm" | Current actual value | **Demo mode OFF** |
| **Operation is switched to the mode wanted, demo mode or normal, as soon as "Alarm" has been actuated.** | | | | |

### 7.2.2 Service mode

| Step | Display | Operation | Display following operation | Testing option / Info |
|---|---|---|---|---|
| **Service menu start** | | | | |
| 1 | OFF | Press "Alarm" and "ON/OFF" simultaneously for 3 seconds | "d1" flashes | Service menu activation |
| **Customer service mode<br>-- Check display LED, buttons, door contact** | | | | |
| 1 | "d1" flashes | Press "Up" once | "L" flashes | Service mode selected |
| 2 | "L" flashes | Press "Alarm" | "rd" flashes | Service mode activated |
| 3 | "rd" flashes | Door open and closed | All LEDs and the display (88) light up | Door contact, LEDs |
| 4 | All LEDs and the display (88) light up * | Press all the buttons | 2 seconds audible alarm "L0" lights up | Buttons |
| **Service mode<br>-- testing electric loads--** | | | | |
| 5 -> 8 | "L0" lights up | | "L0" lights up | All OFF |
| 6 | "L0" lights up | Press "Up" | "L1" lights up | **Compressor + condenser fan ON** |
| 7 | "L1" lights up | Press "Up" | “L3” lights up | **Compressor fan ON** |
| 5 <- 8 | “L3” lights up | Press "Up" | “L4” lights up | **Solenoid valve** |
| Return to step 5 by pressing the "Up" button again. | | | | |
| End | | Press "ON/OFF" | | |

### 7.2.3 Sensor menu

| Step | Display | Operation | Display following operation | Testing option / Info |
|---|---|---|---|---|
| **Service menu start** | | | | |
| 1 | OFF | Hold down "Alarm" and simultaneously press "ON/OFF" | "d1" flashes | Service menu activation |
| 2 | "d1" flashes | Press "Up" twice | "E" flashes | Sensor selection |
| 3 | "E" flashes | Press "Up" | E3 in alternation with the respective temperature | **Air sensor** |
| 4 | E3 in alternation with the respective temperature | Press "Up" | E4 in alternation with the respective temperature | **Evaporator sensor** |
| 5 | E4 in alternation with the respective temperature | Press "Up" | E8 in alternation with the respective door condition (1= open, 2 = closed) | **Reed contact** |
| Return to step 5 by pressing the "Up" button again. | | | | |
| End | | Press "ON/OFF" | | |

## 8.0 Table of error codes

| Error code | Defective component | Emergency mode |
|---|---|---|
| **"F3" flashes** | Air sensor | **Continuous operation** |
| **"F4" flashes** | Evaporator sensor | **Continuous operation** |
| **"Ad" flashes** | Maximum defrost duration exceeded | **Normal operation** |
| **"HE" flashes** | Excess evaporator temperature | **All consumers are switched off** |

In order to acknowledge the "HE" signal, the appliance must be switched off and then unplugged. To put back into operation, repeat steps in reverse order