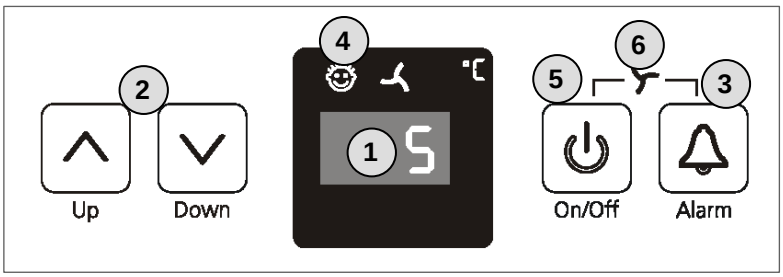
Appliance Documentation

GKv 4310 / 4360 from Index 20

Commercial refrigerator, ventilated

Contents

1.0 Operating and control elements



1 : Temperature display
2 : Temperature setting buttons
3 : Alarm OFF button
4 : Child lock display
5 : ON/OFF button
6 : Fan control (when activated, symbol next to child's face shines)

2.0 Functions at a glance

Control:	Electronic
Temperature display:	Actual value
Temperature range:	+1°C to +15°C
Temperature alarm:	Visual and audible
Door alarm:	Audible
Volt-free alarm contact:	Not present
HACCP:	Not present
Fan:	Present
Defrosting:	Automatic
Interior light:	Not present
Service menu:	Present
Compressor:	Standard
Solenoid valve refrigeration circuit:	Not present
Door closing mechanism:	Present

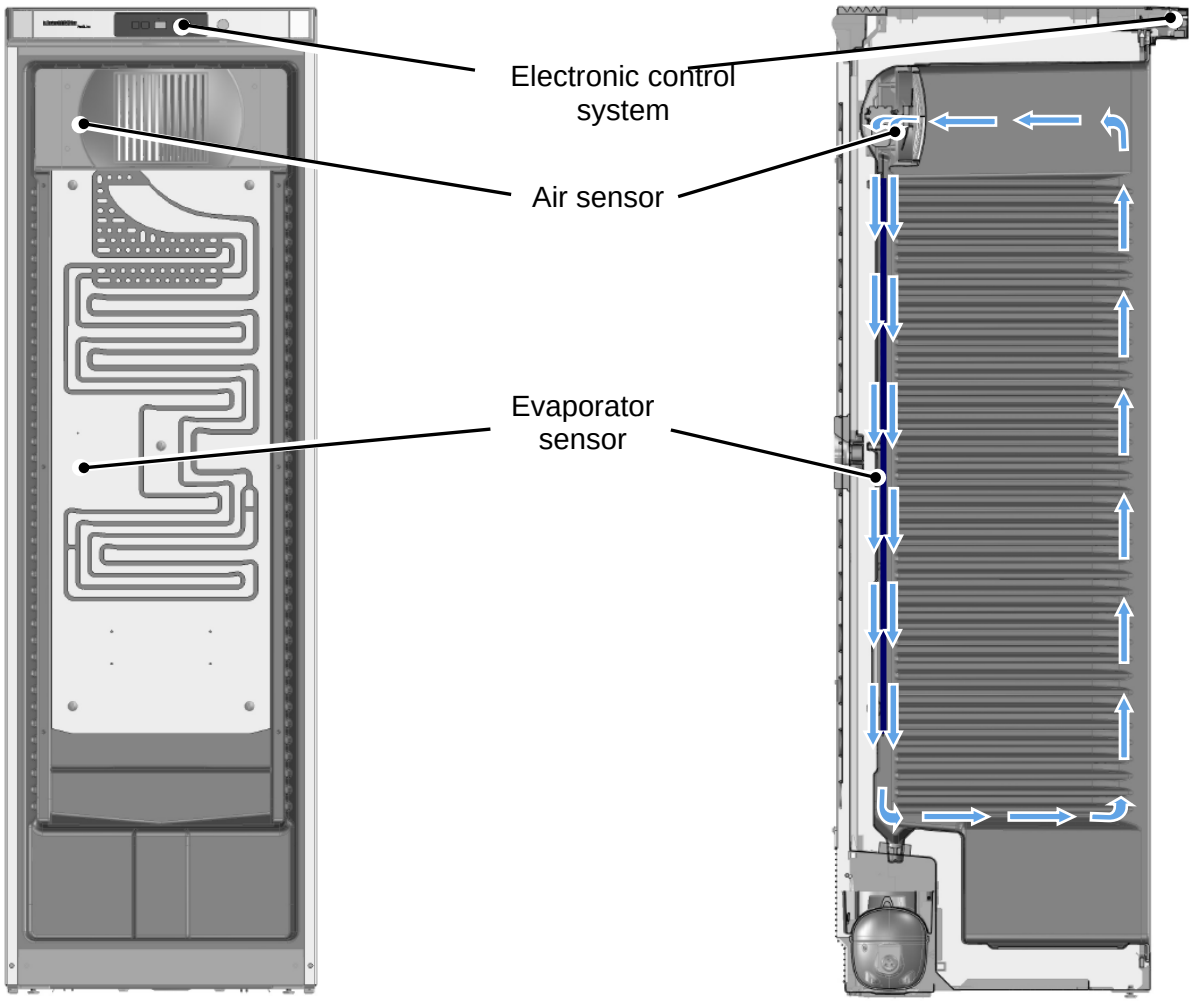
3.0 Description of the appliance

The GKv 43.. model is a commercial refrigerator with freely suspended rear wall evaporator and an interior fan which increases the cooling action of the appliance and provides for more uniform temperature distribution.

Another fan next to the compressor enables functional efficiency of the appliance even at higher ambient temperatures (up to climate rating T).

The temperature is controlled using air and evaporator sensors. Defrosting takes place automatically.

3.1 Sensor positions, schematic diagram



4.0 Main components and their functions

4.1 Electrical components and functions

Electronics		
Type:	Series 6 electronic control system	
Components:	Integral PCB	
Setting range:	+1°C to +15°C	
Display range:	0°C to +47°C	
Functions		
Ventilation:	**Ventilation ON:**	Fan in continuous operation
	Ventilation OFF:	Fan runs in parallel with the compressor
	Note: - When the door is open, the fan is generally switched off - Upon start-up the fan runs only when the evaporator is colder than +8°C.	
Temperature alarm:	When:	Display value is 4K warmer than the set value for longer than 20 minutes.
	Audible:	4 beeps (suppressed during start-up)
	Visual:	Flashing temperature display.
	To avoid unnecessary alerts (e.g. door opening), the alarm value has to be exceeded for at least 20 minutes = alarm delay. (e.g. set value: +5° C , display at +9° C for 20 minutes → alarm).	
Door alarm:	When:	Door open longer than 3 minutes
	Audible:	3 beeps
Child lock:	Activated by the customer menu (see 7.0). When the child lock is active, the ON/OFF button and the temperature setting buttons are inactive. The other functions can be used.	
Defrosting:	The evaporator defrosts during the cooling phases (without electric heater). The cooling is re-activated when required (evaporator sensor switch-on value).	
Sensors		
Evaporator sensor:	Position:	In sensor pocket on the back of the evaporator.
	Function:	**-** Switches the compressor ON - Ends the defrosting phase - Switches the fan ON with a time delay on start-up.
Air sensor:	Position:	To the left of the fan, behind the cover.
	Function:	**-** Switches the compressor OFF - Generates the display value.

Switch			
Door switch:	Position:	In front panel	
	Type:	Reed PCB	
	Contact type:	Make contact	
	Function:	Activated by magnet in the door, magnet is replaceable (under the end piece of the door).	
		Switching signal when:	
		door closed: fan	ON
		door open: fan	OFF
		door alarm	ON
Loads			
Interior fan:	Position:	Back centre of ceiling of compartment liner.	
	Function:	Provides for uniform temperatures and increases the cooling action (see also *Ventilation* function)	
	On start-up the fan starts running only when the evaporator is colder than +8°C.		
Compressor fan:	Position:	In the compressor niche on the back of the appliance.	
	Function:	Runs in parallel with the compressor and, by cooling the compressor, enables use of the appliance at higher ambient temperatures.	
Compressor:	Function:	**ON:** Evaporator sensor switch-on value.	
		OFF: Air sensor switch-off value.	
		Special features: On-delay time (8 mins.) must have elapsed.	
	Type:	Standard	

4.2 Refrigeration components

Compressor:	Standard	
Evaporator:	Type:	Rear wall evaporator
	Type of installation:	Suspended freely.
	Injection point:	Top left
	Flow sequence:	Down on the right and up again on the left
Condenser:	Type:	Wire tube condenser
	Type of installation:	Suspended freely at the rear

4.3 Other points

4.3.1 Door closing mechanism

At an opening angle between 0 and 30°, the hinge sleeve slides over the oblique curve of the hinge pin so that the door closes automatically. At an opening angle larger than 30° the door stays open.

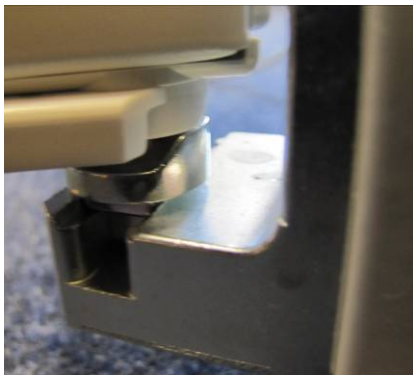


Fig. 4.3.1/ 1 Opening angle > 30°

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 situated behind the fan cover in the rear wall.

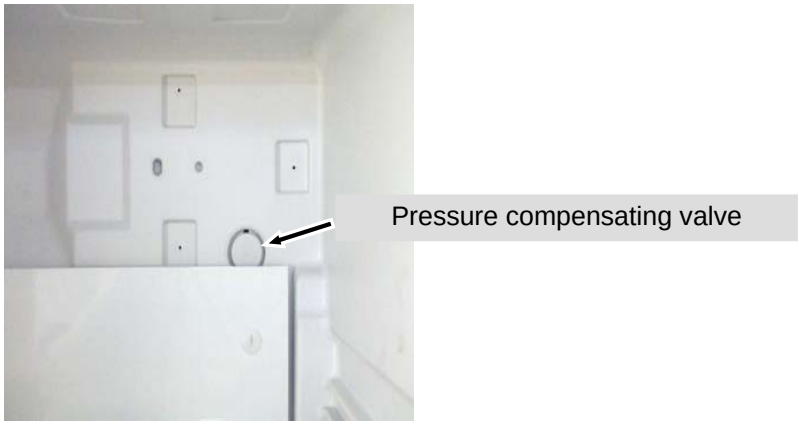


Fig. 4.3.2 / 1

5.0 Assembly instructions / replacement of parts

5.1 Electronic control system

Covers: Unclip the covers on the underside of the front housing.

Note: Short cover is easier to remove if the door is detached!

Fig. 5.1/ 1

Fig. 5.1./ 2

PCB carrier:

- Draw the front housing forwards and raise it.
- Detach the PCB edge connector and unclip the PCB carrier from the front housing.

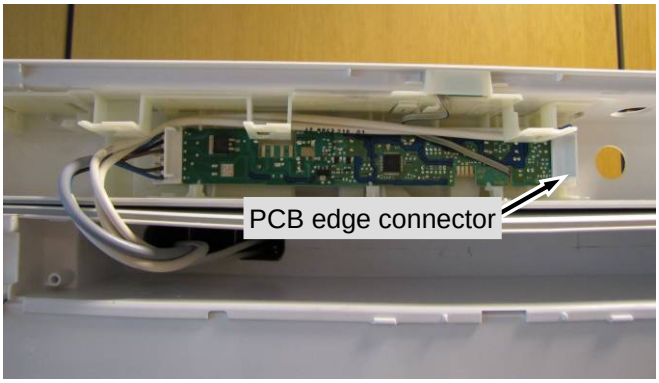


Fig. 5.1/ 3

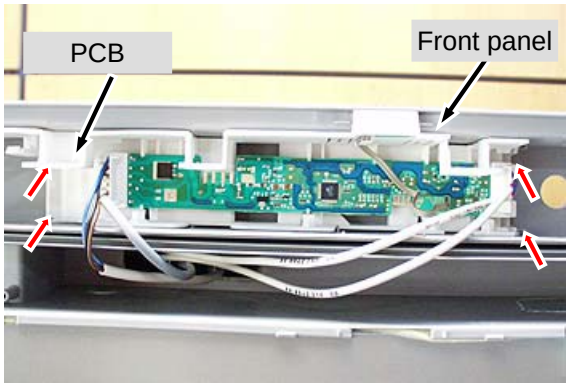


Fig. 5.1./ 4

PCB: Release the marked locking devices and remove the PCB from the PCB carrier.

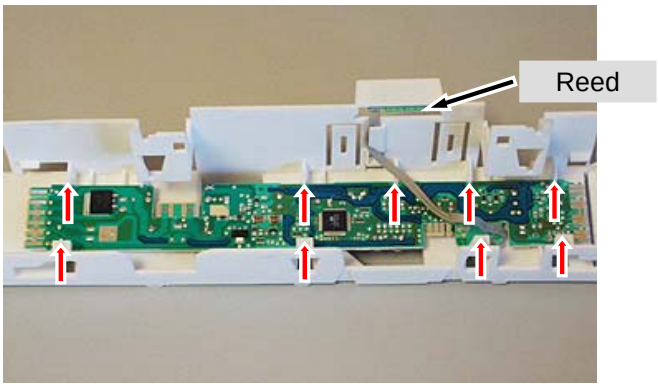


Fig. 5.1 / 5

5.2 Interior fan

Fan cover:

- Remove the stoppers and undo the fastening screws.
- Tip the cover forwards and lay it on one of the wire grids.
- Unfasten the fan mount, detach the blades and disassemble the fan motor.

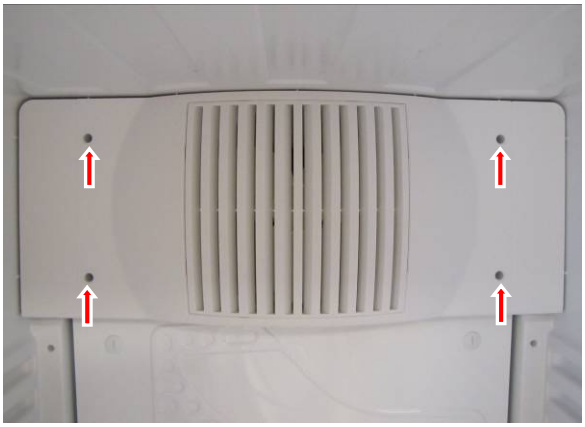


Fig. 5.2/ 1 Fan cover

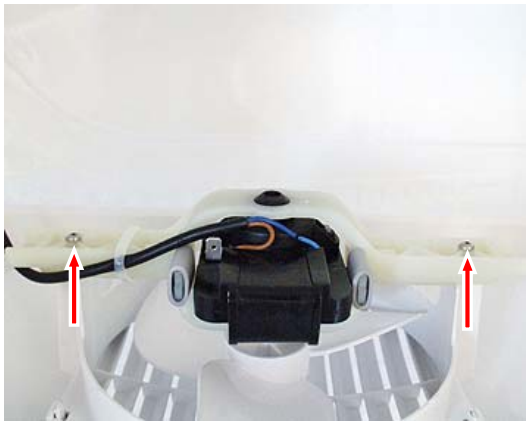


Fig. 5.2/ 2 Fan mount

Connector:

- Release the strain relief at the back of the appliance and draw the cable together with the connector out of the duct.

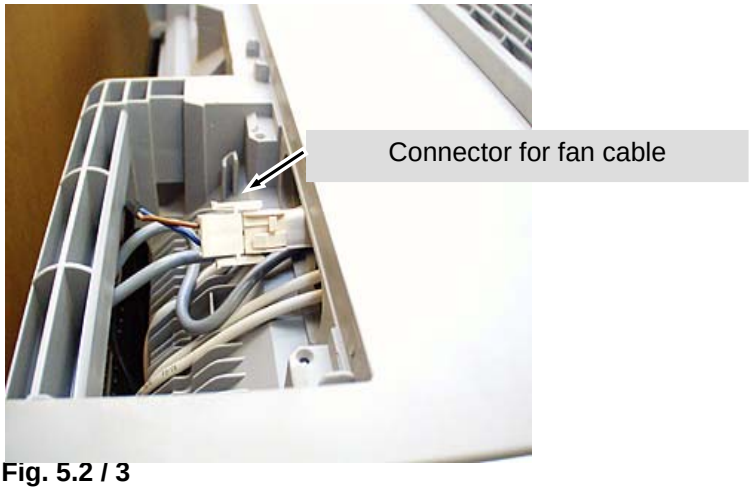


Fig. 5.2 / 3

5.3 Air sensor

Air sensor:

- Remove the fan cover.
- Take the sensor out of the mount and extricate it through the rear wall.

Fig. 5.3 / 1

5.4 Evaporator sensor

Evaporator sensor:

- Remove the fan cover.
- Undo the bayonet screws and carefully swing the evaporator to the left.
- Pull sensor out of the pocket and extricate it through the rear wall.

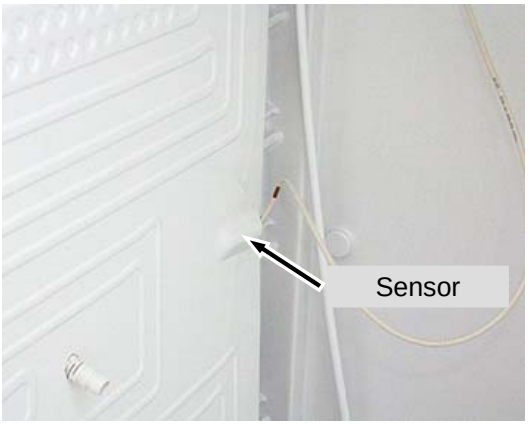


Fig. 5.4 / 1

5.5 Compressor fan

Fan:

- Remove the grille.
- Detach the fan blades and take the motor out of the mount.

Fig. 5.5/ 1

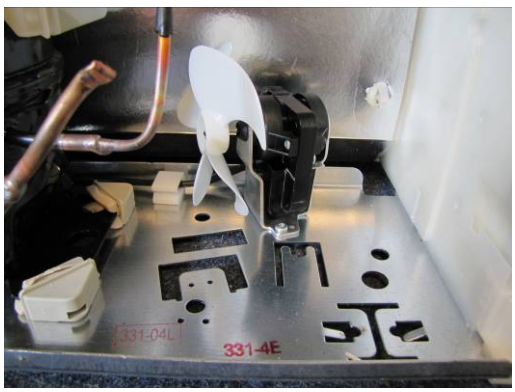


Fig. 5.5/ 2

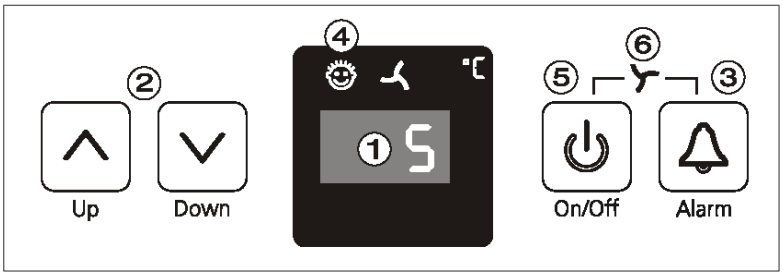
6.0 Technical data

Interior fan:	Wattage: Voltage: Speed:	15 W 220-240 V, 50-60 Hz 1800 rpm Direction of rotation: right-hand (viewed onto shaft)
Compressor fan	Wattage: Voltage: Speed:	13 W 220-240 V, 50-60 Hz 2500 rpm Direction of rotation: right-hand (viewed onto shaft

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

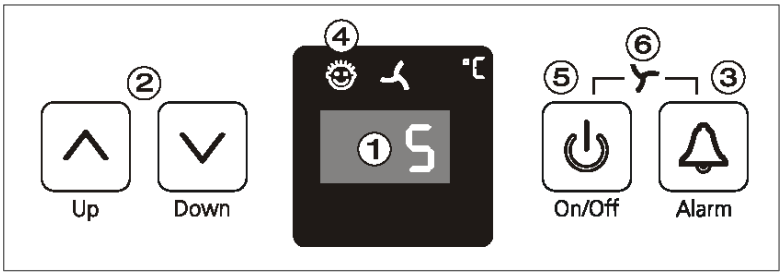
7.0 Customer menu



Step	Display	Operation	Display following operation	Testing option / Info
Customer menu start				
1	Actual value	Hold down "Alarm" for 3 seconds	C	Customer menu activation
2a	C	Press "Alarm"	c0	Child lock deactivated
2a	c0	Press "Up"	c1	Activate child lock
2a	c1	Press "Alarm" once and "ON/OFF" once	Actual value	Child lock ON
2b	c	Press "Alarm"	c1	Child lock activated
2b	c1	Press "Down"	c0	Deactivate child lock
2b	c0	Press "Alarm" once and "ON/OFF" once	Actual value	Child lock OFF
3	c	Press "Up"	h	Display brightness selection
3	h	Press "Alarm"	h1 to h5	Adjust display brightness
3	h1 to h5	Select brightness wanted by pressing "up" and confirm by pressing "Alarm"	h	Display brightness altered
3	h	Press "ON/OFF"	Actual value	Display brightness set

8.0 Service menu

The service menu may be used by service technicians only.



8.1 Demo mode

Step	Display	Operation	Display following operation	Testing option / Info
Service menu start				
1	Actual value	Press "Alarm" and "ON/OFF" simultaneously for 3 seconds	"L" flashes	Service menu activation
Activating demo mode (demo mode can be deactivated only using the service menu, not by OFF/ON.)				
2a	"L" flashes	Press "Up"	"d" flashes	Demo mode menu
3a	"d" flashes	Press "Alarm"	"d0" (only 0 flashes)	Demo mode menu
4a	"d0" (only 0 flashes)	Press "Up"	"d1" (only 1 flashes)	Demo mode menu
5a	"d1" (only 1 flashes)	Press "Alarm"	Set value	**Demo mode ON**
Deactivating demo mode				
2b	"L" flashes	Press "Up"	"d" flashes	Demo mode menu
3b	"d" flashes	Press "Alarm"	"d1" (only 1 flashes)	Demo mode menu
4b	"d1" (only 1 flashes)	Press "Down"	"d0" (only 0 flashes)	Demo mode menu
5b	"d0" (only 0 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.				

8.2 Service mode

Step	Display	Operation	Display following operation	Testing option / Info
Service menu start				
1	Actual value	Hold down "Alarm" and simultaneously press "ON/OFF"	L flashes	Service mode selected
Service mode -- test display LED, buttons, door contact, potentiometer --				
2	L	Press "Alarm"	rd	Service mode activated
3	rd	Door open and closed	All display segments shine	Door contact, LEDs
4	All display segments shine	Press all the buttons	Short beep – LO shines	Buttons
After step 4, pressing the last button, L0 flashes				
Service mode -- testing electric loads--				
5	L0	No operation	L0	All OFF
7	LO	Press "Up"	L2	Compressor ON
8	L2	Press "Up"	L7	Fan ON
After pressing the Alarm button again, the system returns to step 5.				
End		Press ON/OFF		

8.3 Sensor menu

Step	Display	Operation	Display following operation	Testing option / Info
Service menu start				
1	Actual value	Hold down "Alarm" and simultaneously press "ON/OFF"	L flashes	Service menu activation
Demo mode (Demo mode can be deactivated only via service menu, not by OFF/ON.)				
1	L	Press "Up" until E flashes	E	Sensor selection
2a	E	Press "Alarm" and select the sensor using the "Up" button	E1 and E2 in alternation with the respective	Sensor
2b	E9	Open/close door	Displays the door status 1 open, 0 closed	Reed contact
As soon as "ON/OFF" is pressed, one goes to the higher-level menu (d1, L, F).				

9.0 Table of error codes

Error code	Defective component	Emergency mode
F1	Air sensor	Compressor: 20 min. ON, 15 min. OFF Fan: Depending on setting
F2	Evaporator sensor	Compressor: 20 min. ON, 15 min. OFF Fan: Depending on setting