

Appliance Documentation

GKv 4310 / 4360 / 5730 / 5790 from -22A

GKv 5760 / 6410 / 6460 from -23A

GKv 5710 from -23F

Commercial refrigerator, ventilated



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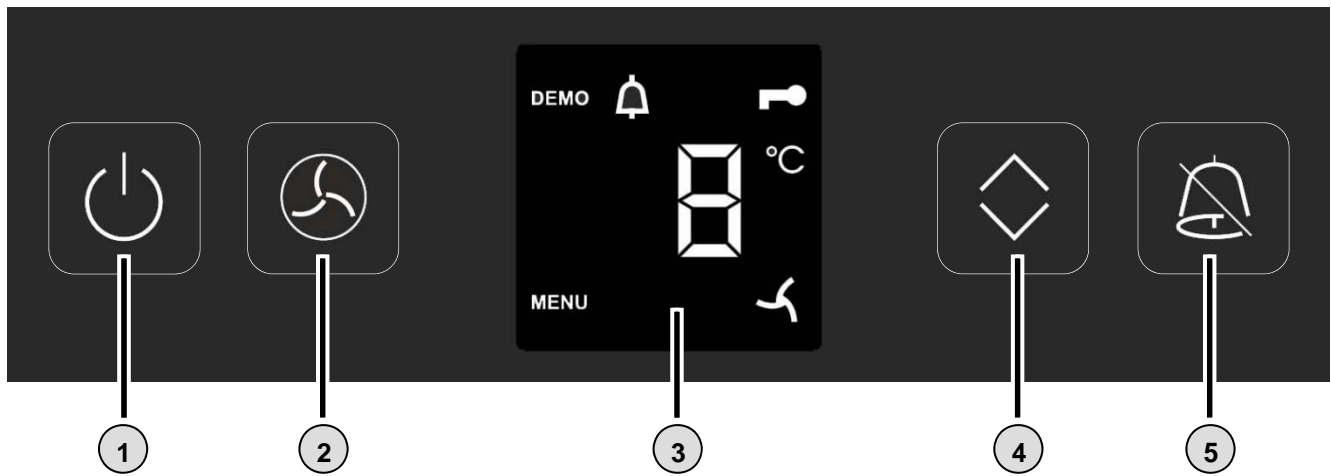
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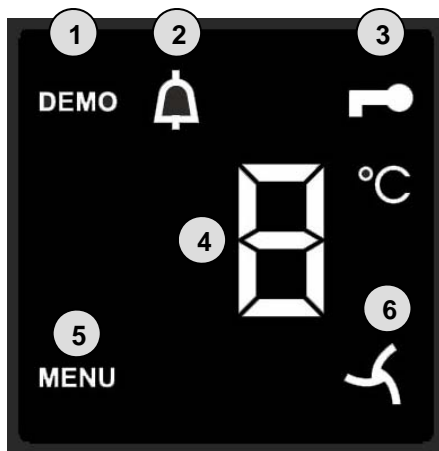
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1.0 Operating and control elements



- 1 ON/OFF-button
- 2 Ventilation button
- 3 Temperature display
- 4 Temperature setting buttons
- 5 Alarm OFF button



- 1 Demo mode active
- 2 Alarm (symbol flashes when the interior temperature is too high or too low)
- 3 Child lock is active
- 4 Temperature display
- 5 Setting mode is active
- 6 Fan active

2.0 Functions at a glance

Control:	Electronic
Temperature display:	Actual value
Temperature range:	GKv ..10 / ..60: +1°C to +15°C GKv ..30 / ..90: -2°C to +15°C
Temperature alarm:	Visual and audible
Door alarm:	Audible
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 models are 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.

The models GKv 43.. also have another fan next to the compressor enables functional efficiency of the appliance even at higher ambient temperatures.

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

3.1 Sensor positions, schematic diagram

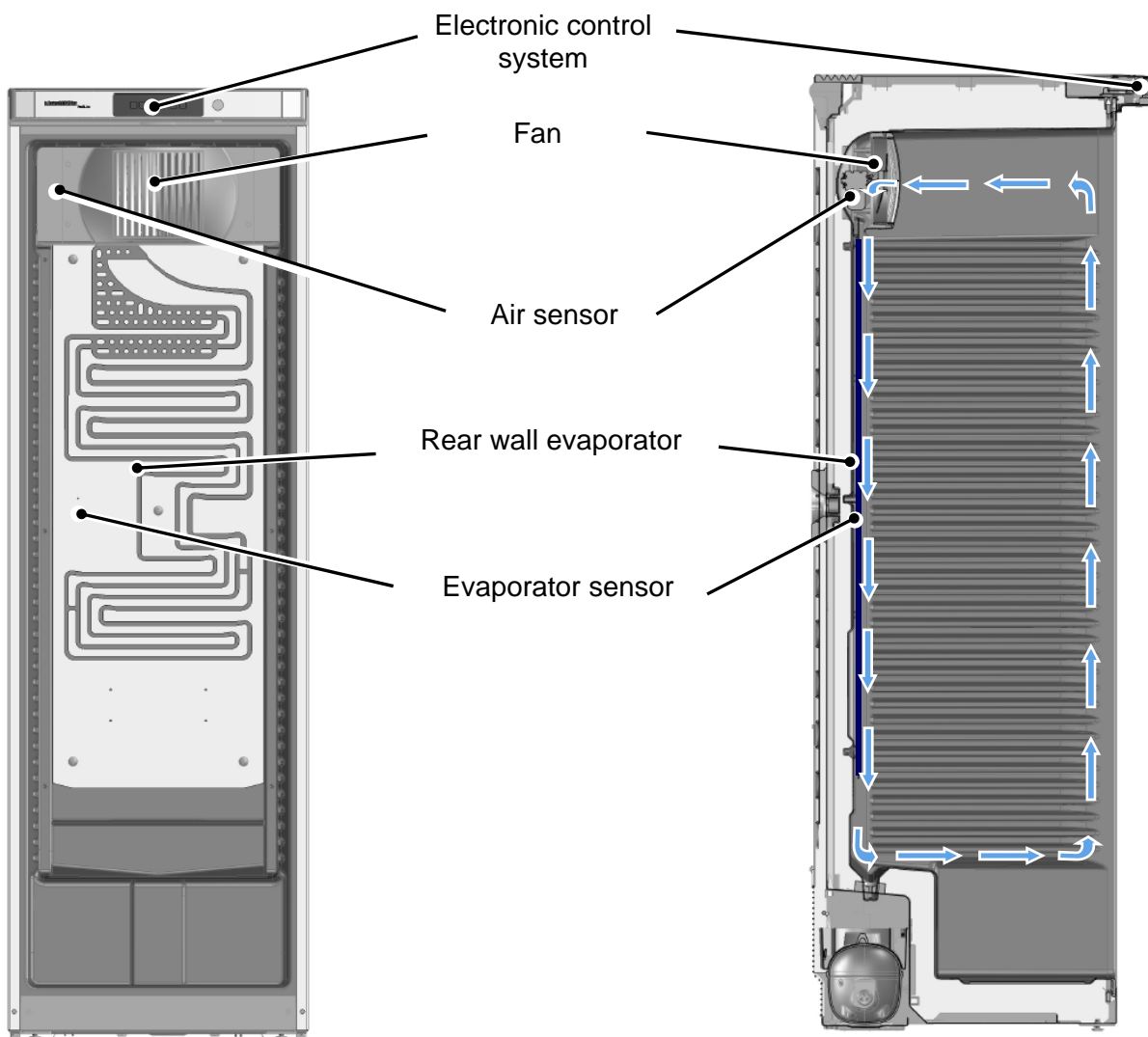


Fig. 3.1/ 1

Fig. 3.1/ 2

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:	GKv ..10 / ..60: +1°C to +15°C GKv ..30 / ..90: -2°C to +15°C
Display range:	-2° C to +47° C
Functions	
Ventilation:	<p><u>Ventilation ON:</u> Fan in continuous operation</p> <p><u>Ventilation OFF:</u> Fan runs in parallel with the compressor</p> <p>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.</p>
Temperature alarm:	<p>When: Display value is 4K warmer than the set value for longer than 20 minutes.</p> <p>Audible: 4 beeps (suppressed during start-up)</p> <p>Visual: Flashing temperature display.</p> <p>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).</p>
Door alarm:	<p>When: Door open longer than 3 minutes</p> <p>Audible: 3 beeps</p>
Child lock:	<p>Activated by the customer menu (see 7.0).</p> <p>When the child lock is active, the ON/OFF button and the temperature setting buttons are inactive. The other functions can be used.</p>
Defrosting:	The evaporator defrosts during the respective cooling pauses (no electrical heater). The heater switches back on where required (evaporator sensor switch-on value).
GKv 5730 / 5790:	A defrost phase takes place after an accumulated compressor run time (min. 4 hours / max. 12 hrs. depending on number and duration of door openings). During this period, the cooling switches off and the heater switches on (fan off). The defrost phase is ended as soon as the evaporator is heated to +10°C and lasts for a maximum of 50 minutes. The display is retained from the start of the defrost phase until 30 minutes after defrosting has ended.
Sensors	
Evaporator sensor:	<p>Position: In sensor pocket on the back of the evaporator.</p> <p>Function:</p> <ul style="list-style-type: none"> - Switches the compressor ON - Ends the defrosting phase - Switches the fan ON with a time delay on start-up.
Air sensor:	<p>Position: To the left of the fan, behind the cover.</p> <p>Function:</p> <ul style="list-style-type: none"> - Switches the compressor OFF - Generates the display value.

Safety temperature limiter:**(Only GKv 5730 / 5790)**

Position: On the defrost heater.

Function: Switches the heater OFF in cases of fault (i.e. overload).

Note: The safety temperature limiter must be replaced if it triggers. The safety temperature limiter can only be replaced together with the heater.

Switch**Door switch:**

Position: In front panel

Type: Reed switch

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.****Defrost heater:****(Only GKv 5730 / 5790)**

Position: On the back of the evaporator.

Function: Supports the defrosting – especially in if the appliance is set cold.

Defrost water channel heater:**(Only GKv 5730 / 5790)**

Position: Adhered and foamed-in beneath the defrost water channel.

Function: Ensure that the defrost water drain does not freeze, especially if the appliance is set cold. Switching status in line with the defrost heater.

Compressor fan:**(Only GKv 43..)**

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.

4.2 Refrigeration components

Compressor:	Standard	
Evaporator:	Type:	Rear wall evaporator
	Type of installation:	Suspended freely.
	Injection point:	Top left
	Flow sequence:	See 4.2.1 Principle of operation of the refrigerating system
Condenser:	Type:	Wire tube condenser
	Type of installation:	Suspended freely at the rear

4.2.1 Principle of operation of the refrigerating system

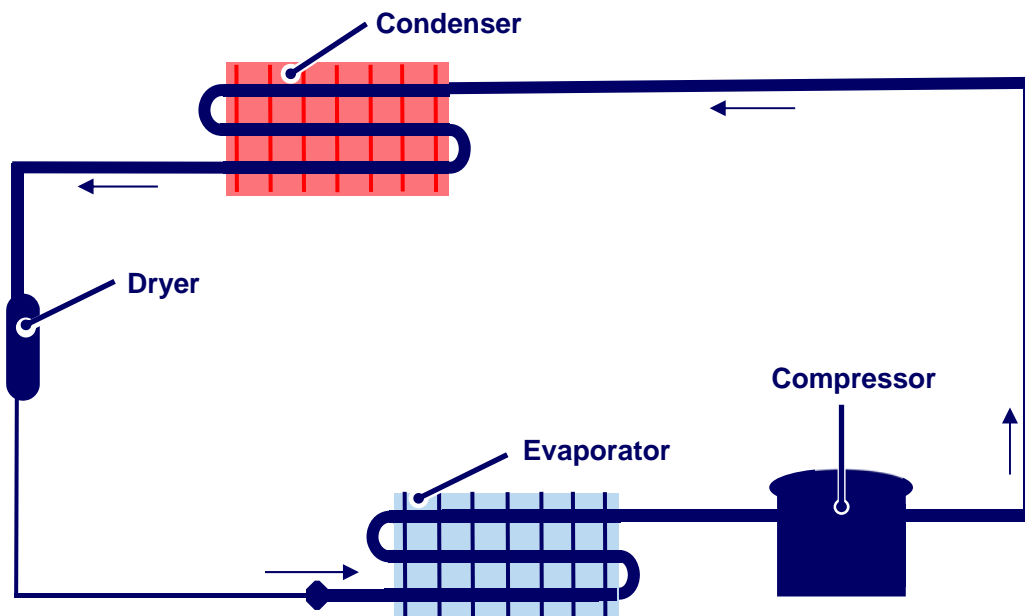


Fig. 4.2.1

4.3 Sonstiges

4.3.1 Türschließmechanismus

At an opening angle of between 0 and 90°, the hinge bushing slips over the inclined hinge pin so that the door closes automatically. At an opening angle of more than 90°, the door remains open.

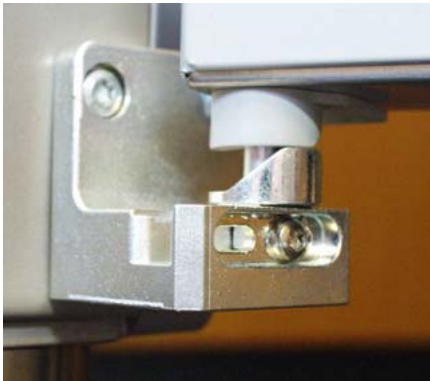


Fig. 4.3.1/ 1 Opening angle > 90°

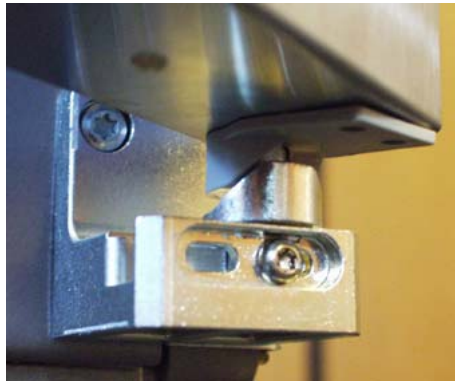


Fig. 4.3.1/ 2 Opening angle < 90°



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.

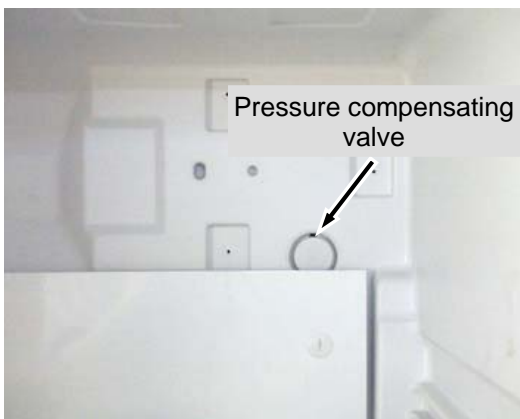


Fig. 4.3.2/ 1

4.3.3 Stellfüße bei GKv 57/64

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 Height-adjustable feet

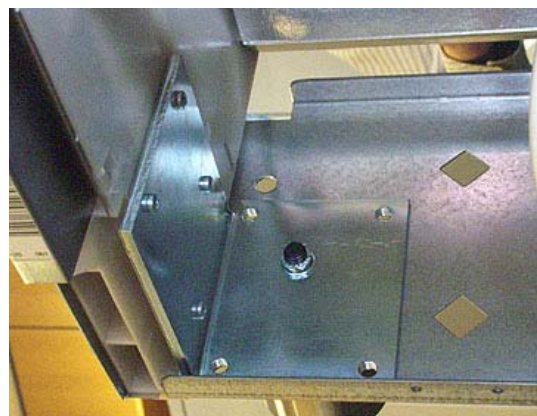


Fig. 4.3.3/ 2 Reinforcement for height-adjustable feet at the rear

5.0 Montagehinweise / Teiletausch

5.1 Elektronik

Covers:

- Unclip the covers on the underside of the front housing.
- Undo the screws located beneath.

Note: The short cover is easier to remove if the door is detached.



Fig. 5.1/ 1



Fig. 5.1/ 2

PCB carrier:

- Pull the front housing towards the front and raise it.
- Detach the PCB edge connectors and unclip the PCB carrier from the front housing.

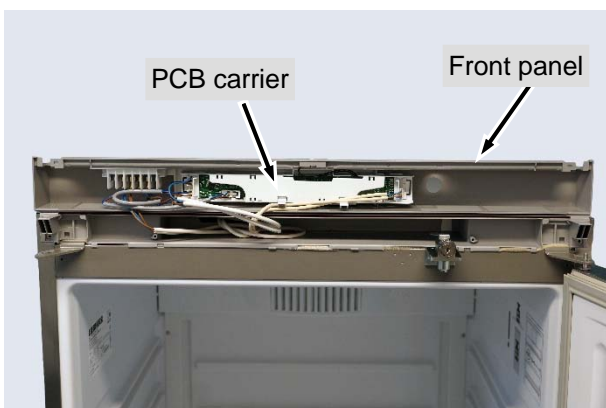


Fig. 5.1/ 3

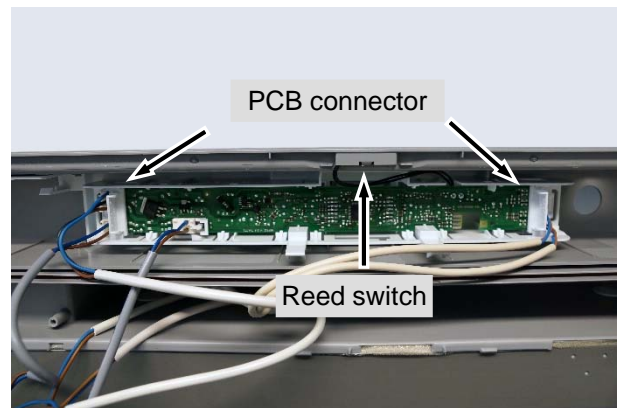


Fig. 5.1/ 4

PCB:

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

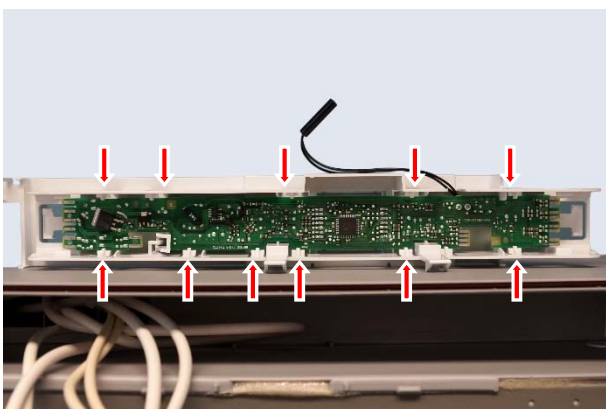


Fig. 5.1/ 5

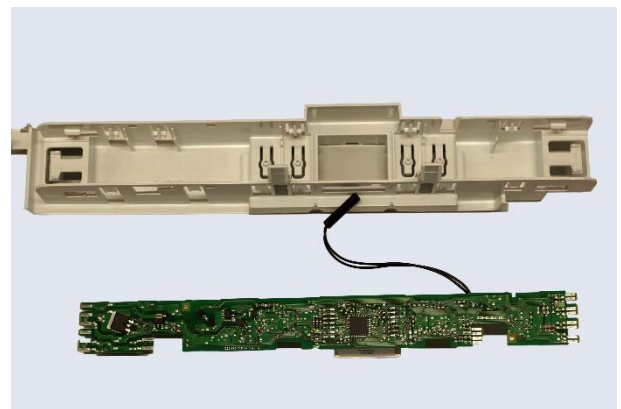


Fig. 5.1/ 6

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.

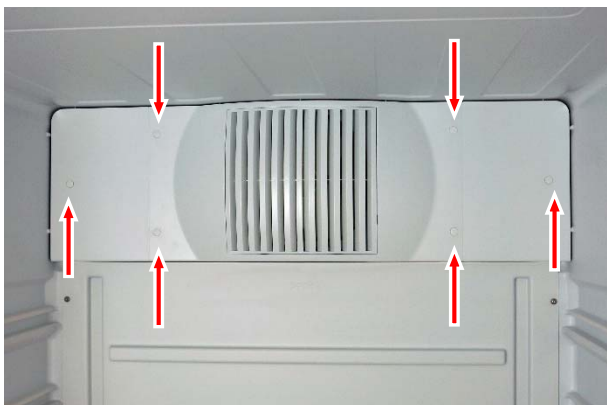


Fig. 5.2/ 1 Fan cover

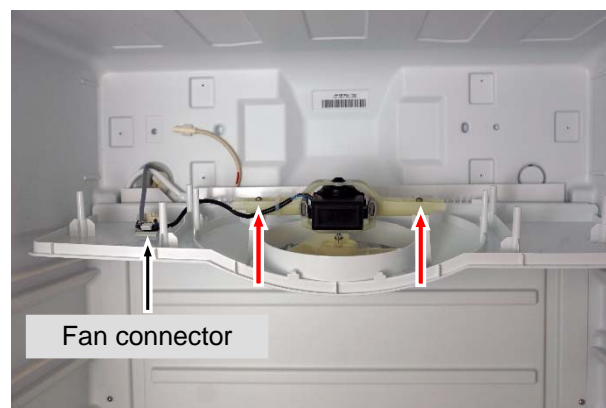


Fig. 5.2/ 2 Fan mount

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 cover (Only GKv 5730 / 5790)

Evaporator cover: – Undo the screws and remove the cover.



Fig. 5.4/ 1

5.5 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. 5.5/ 1

5.6 Heater with safety temperature limiter (Only GKv 5730 / 5790)

Heater and safety

- temperature limiter:**
- Remove evaporator cover.
 - Release the evaporator and swing it to the side.
 - The heater is fastened to the rear of the evaporator via a retaining plate.
 - The safety temperature limiter can only be replaced together with the heater.

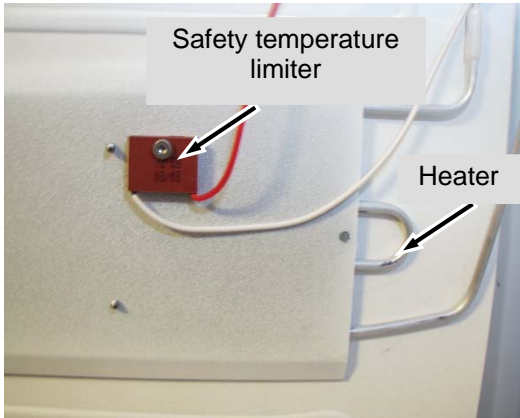


Fig. 5.6/ 1

5.7 Compressor fan on GKv 43..

- Fan:**
- Remove the cover grid.
 - Detach the fan blades and remove the motor from the holder.



Fig. 5.7/ 1



Fig. 5.7/ 2

6.0 Technical data

Interior fan:

GKv 57/64:	Output:	5.5 watts
	Voltage:	220–240 volts, 50–60 Hz
	Speed:	1350 rpm
	Direction of rotation:	Right (view towards the shaft)

GKv 43:	Output:	14.8 watts
	Voltage:	220–240 volts, 50–60 Hz
	Speed:	1850 rpm
	Direction of rotation:	Right (view towards the shaft)

Defrost heater:
(Only GKv 5730 / 5790)

Output:	52 watts
Voltage:	230 volts

Defrost water channel heater:
(Only GKv 5730 / 5790)

Output:	3 watts
Voltage:	230 volts

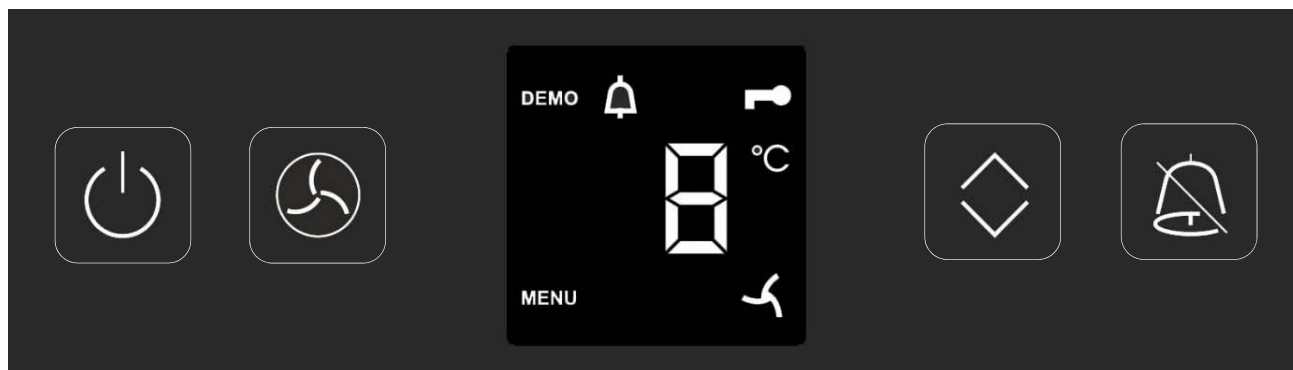
Compressor fan
(Only GKv 43)

Output:	13 watts
Voltage:	220–240 volts, 50–60 Hz
Speed:	2500 rpm
Direction of rotation:	Right (view towards the 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	Action	Display following action	Testing option / Info
Start of customer menu				
1	Actual value	Hold down "Fan Button" for 5 seconds	"c" flashes	Customer menu activation
Activate / deactivate child lock				
2a	"c" flashes	Press "Fan button"	"c1" (MENU flashes)	Select child lock
3a	"c1" (MENU flashes)	Press "Fan button"	"c" flashes	Activate child lock
4a	"c" flashes	Press "ON/OFF"	Actual value	Child lock ON
2b	"c" flashes	Press "Fan button"	"c0" (MENU flashes)	Child lock deactivated
3b	"c0" (MENU flashes)	Press "Fan button"	"c" flashes	Deactivate child lock
4b	"c" flashes	Press "ON/OFF"	Actual value	Child lock OFF
Adjusting the display brightness				
2	"c" flashes	Press "Up/Down"	"h" flashes	Selecting the display brightness
3	"h" flashes	Press "Fan button"	h1 to h5	Altering the display brightness
4	h1 to h5	Select the desired brightness level using "Up/Down" and confirm with the "Fan button"	"h" flashes	Display brightness altered
5	"h" flashes	Press "ON/OFF"	Actual value	Display brightness set

8.0 Service menu

The service menu may only be used by service engineers.



8.1 Demo mode

Step	Display	Action	Display following action	Testing option / Info
Start service menu				
1	Actual value	Press "Up/Down" and "ON/OFF" simultaneously for 5 seconds	"d" flashes	Service menu activation
Activate demo mode (demo mode can only be deactivated via the service menu, not by OFF/ON.)				
2a	"d" flashes	Press the "Fan button"	"d1" (MENU flashes)	Demo mode menu
3a	"d1" (MENU flashes)	Press the "Fan button"	Target value display + demo	Demo mode ON
Deactivating demo mode				
2b	"d" flashes	Press the "Fan button"	"d0" flashes	Demo mode menu
3b	"d0" (MENU flashes)	Press the "Fan button"	Actual value display	Demo mode OFF
The appliance switches into the desired operating mode, either demo mode or normal operation, as soon as the "Fan button" has been actuated.				

8.2 Control panel test mode

Step	Display	Action	Display following action	Testing option / Info
Start service menu				
1	Actual value	Press "Up/Down" and "ON/OFF" simultaneously for 5 seconds	"d" flashes	Service menu activation
Control panel test mode – Display LED, buttons, door contact test –				
2	"d" flashes	Press "Up/Down" until "P" flashes.	"P" flashes	Control panel test selected
3	"P" flashes	Press the "Fan button"	"P1" flashes	Control panel test mode activated
4	"P1" flashes	Press the "Fan button"	All LEDs and the display (88) light up	Door contact, LEDs
5	All LEDs and the display (88) light up	Press all buttons and open and close the door	2 second audible alarm => Appliance logically switches off.	Button actuation is confirmed by beep
Termination	Control panel test cannot be terminated in the 4th step; it has to be performed in full. Should a button/sensor be defective , there will be no 2-second beep and the appliance will not switch OFF . The appliance then has to be unplugged and plugged back in again.			

8.3 Load test mode

Step	Display	Action	Display following action	Testing option / Info
Start service menu				
1	Actual value	Press "Up/Down" and "ON/OFF" simultaneously for 5 seconds	"d" flashes	Service menu activation
Load test mode – Testing electric loads –				
2	"d" flashes	Press "Up/Down" until "L" flashes.	"L" flashes	Load test mode selected
3	"L" flashes	Press the "Fan button"	"L" (MENU) flashes	Load test mode activated
4	"L" flashes	Press the "Fan button"	"0" (MENU) flashes	All OFF
5	"0" (MENU) flashes)	Press "Up/Down"	"1" (MENU) flashes)	Compressor ON
6	"1" (MENU) flashes)	Press "Up/Down"	"4" (MENU) flashes)	Defrost heater ON (Only GKv 5730 / 5790)
7	"4" (MENU) flashes)	Press "Up/Down"	"7" (MENU) flashes)	Fan ON
Return to step 5 by pressing the "Up/Down" button again				
Termination	Press "ON/OFF" 3 times			

8.4 Sensor menu

Step	Display	Action	Display following action	Testing option / Info
Start service menu				
1	Actual value	Press "Up/Down" and "ON/OFF" simultaneously for 5 seconds	"d" flashes	Service menu activation
Sensor test mode – Sensor test –				
2	"d" flashes	Press "Up/Down" until "E-" flashes.	"E-" flashes	Load test mode selected
3	"E-" flashes	Press the "Fan button"	"E" (MENU) flashes	Load test mode activated
4	"E" flashes	Press the "Fan button"	"1" alternating with the respective temperature	Air sensor
5	"1" alternating with the respective temperature	Press the "Fan button"	"2" alternating with the respective temperature	Evaporator sensor
6	"2" alternating with the respective temperature	Press "Up/Down"	"A" alternating with the respective condition	Door switch
Return to step 5 by pressing the "Up/Down" button again.				
Termination		Press "ON/OFF" 3 times		

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 the settings
F2	Evaporator sensor	Compressor: 20 min. ON, 15 min. OFF Fan: Depending on the settings