CONVOTHERM®
A Welbilt Brand

Convotherm mini
compact creativity

Combi oven

OES mini

Service manual - Original, ENG

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1 General information

1.1 Contact data

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Documents download centre (spare-parts lists, circuit diagrams, service manuals, brochures, instructions)	www.convotherm.com/resources www.convotherm.com/Service#Service

1.2 Environmental protection

Statement of principles

Our customers' expectations, the legal regulations and standards and our company's own reputation set the quality and service for all our products.

We have an environmental management policy that not only ensures compliance with all environmental regulations and laws, but also commits us to continuous improvement of our green credentials.

We have developed a quality and environmental-management system in order to guarantee the continued manufacture of high-quality products, and to be sure of meeting our environmental targets.

This system satisfies the requirements of ISO 9001:2015 and ISO 14001:2015.

Environmental protection procedures

We observe the following procedures:

- Use of residue-free compostable wadding materials
- Use of RoHS-compliant products
- REACH chemical law
- Multiple re-use of cardboard packaging
- Recommendation and use of bio-degradable cleaning agents
- Recycling of electronic waste
- Environmentally friendly disposal of old appliances

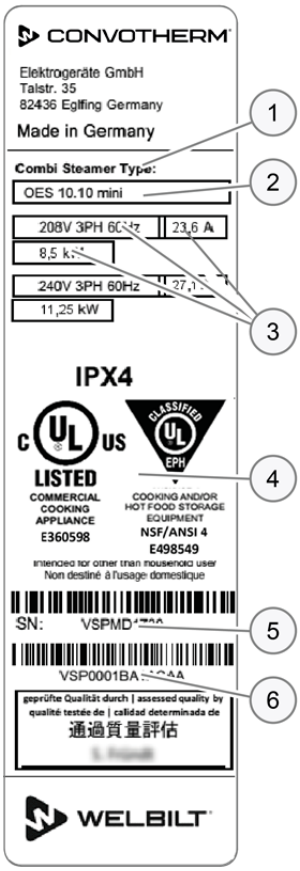
Join us in our commitment to protect the environment.

1.3 Identifying your combi oven

Position of type plate

The type plate is located on the left-hand side of the combi oven.

Layout and structure of the type plate



Item	Name	
1	**Name of appliance** Combi Steamer	
2	**Trade name**	
	Element	Meaning
	OES	Electric appliance with water injection
	numbers xx.yy	Appliance size
	mini	Appliance series
3	**Electrical values**	
4	**Appliance tests**	
5	**Serial number**	
6	**Part number**	

1.4 Essential reading relating to safety

Safety information in the documentation

Safety information relating to the combi oven appears only in the service manual, installation manual and the user manual.

The service manual contains the safety information for the tasks covered by the manual and which are performed during all service, maintenance and repair work.

The installation manual contains the safety information for the tasks covered by the manual and which are performed when transporting, setting up and installing the appliance and when putting the appliance into service and removing the appliance from service.

The user manual contains the safety information for the tasks covered by the manual and which are performed during cooking, cleaning and servicing work.

The safety information contained in the user manual and installation manual must always be considered to be part of the operating instructions. The safety information contained in the user manual and installation manual must always be observed when performing tasks that go beyond merely operating the software.

Parts of this document that must be read without fail

If you do not follow the information in this document, you risk potentially fatal injury and property damage.

To guarantee safety, all people who work with the combi oven must have read and understood the following parts of this document before starting any work:

- the chapter 'For your safety' on page 12
- the sections that describe the activity to be carried out

Danger symbol

Danger symbol	Meaning
	Warns of potential injuries. Heed all the warning notices that appear after this symbol to avoid potential injuries or death.

Form of warning signs

The warning signs are categorized according to the following hazard levels:

Hazard level	Consequences	Likelihood
⚠DANGER	Death / serious injury (irreversible)	Immediate risk
⚠WARNING	Death / serious injury (irreversible)	Potential risk
⚠CAUTION	Minor injury (reversible)	Potential risk
NOTICE	Damage to property	Potential risk

1.5 About this service manual

Who should read this manual

Name of target group	Tasks
Service engineer	Performs all servicing and repair work
Electrical installation engineer	Performs the following work: ▪ Installing and removing the electrical connection ▪ All servicing and repair work

Contents of the full documentation

Book type	Contents
Service manual	
Installation manual	▪ Describes how to move, set up and install the appliance, and how to put the appliance into service ▪ Describes the hazards and appropriate preventive measures relevant to all installation tasks ▪ Contains the technical data
User manual	▪ Describes the working procedures and operating steps for cooking and cleaning ▪ Contains the servicing schedule and information on troubleshooting ▪ Describes the hazards and appropriate preventive measures relevant to operation
Operating instructions	▪ Describes the appliance user interface ▪ Contains instructions on how to use the software

Notation for decimal points

A decimal point is always used in order to achieve international standardization.

2 Important information

General information

- These instructions are intended solely for a qualified installation engineer and an authorized customer service engineer.
- Inform the customer of important points relating to operation and safety.

Additional necessary instructions

This manual is a supplement to the user manual and installation manual for your appliance and must only be used in conjunction with them. Please refer to the manuals for technical data, the intended use, design and operation as well as safety information concerning hazards in the kitchen and installation environment.

3 For your safety

Purpose of this chapter

This chapter provides you with all the information you need in order to use the combi oven safely without putting yourself or others at risk.

This is a particularly important chapter that you should read through carefully.

3.1 Basic safety code

Object of this safety code

This safety code aims to ensure that all persons who use the combi oven have a thorough knowledge of the hazards and safety precautions, and that they follow the warning notices given in the user manual and on the combi oven. If you do not follow this safety code, you risk potentially fatal injury and property damage.

Referring to the user manuals included in the customer documentation

Follow the instructions below:

- Read in full the chapter 'For Your Safety' and the chapters that relate to your work.
- Always keep to hand the manuals included in the customer documentation for reference.
- Pass on the user manuals included in the customer documentation with the combi oven if it changes ownership.

Ground rules for installation

Installation must comply with all national and regional laws and regulations and comply with the local regulations of the relevant utility companies and local authorities and with other relevant regulations.

These regulations also include:

- National Electrical Code, ANSI/NFPA 70 (current edition)
- Canadian Electrical Code, CSA C22.2
- Food Code and Food Service Sanitation Manual of the Food and Drug Administration (FDA) (respective current edition)
- Latest edition of the international plumbing code, International Code Council (ICC) or the uniform Plumbing Code, International Association of Plumbing and Mechanical Officials (IAPMO)
- Regulations from the National Sanitation Foundation (NSF)
- All local regulations concerning fire protection, occupational safety and health protection

Working with the combi oven

Follow the instructions below:

- Only those persons who satisfy the requirements stipulated in this user manual are permitted to use the combi oven.
- Only use the combi oven for the specified use. Never, under any circumstances, use the combi oven for other purposes that may suggest themselves.
- Take all the safety precautions specified in this user manual and on the combi oven. In particular, use the prescribed personal protective equipment.
- Only stand in the working positions specified.
- Do not make any changes to the combi oven, e.g. removing parts or fitting un-approved parts. In particular, you must not disable any safety devices.

3.2 ⚠ Intended use of your combi oven

Intended use

- The combi oven is designed and built solely for cooking different foodstuffs in standard-sized food containers (e.g. Gastronorm containers, standard baking trays). Steam, convection and combi-steam (non-pressurized superheated steam) are used for this purpose.
- The food containers can be made of stainless steel, ceramic, plastic, aluminium, enamelled steel or glass. Glass food containers must not exhibit any form of damage.
- The combi oven is intended solely for professional, commercial use.

Requirements to be met by personnel

- The combi oven must only be operated and installed by personnel who satisfy specific requirements. Please refer to 'Requirements to be met by personnel, working positions' on page 21 for the training and qualifications requirements.
- Personnel must be aware of the risks and regulations associated with handling heavy loads.

Requirements relating to the operating condition of the combi oven

- The combi oven must only be operated when all safety devices and protective equipment are fitted, in working order and fixed properly in place.
- The manufacturer regulations for operating and servicing the combi oven must be observed.
- The combi oven must not be loaded over the maximum permissible loading weight for the given model or shelf allowance; see 'Technical Data'.

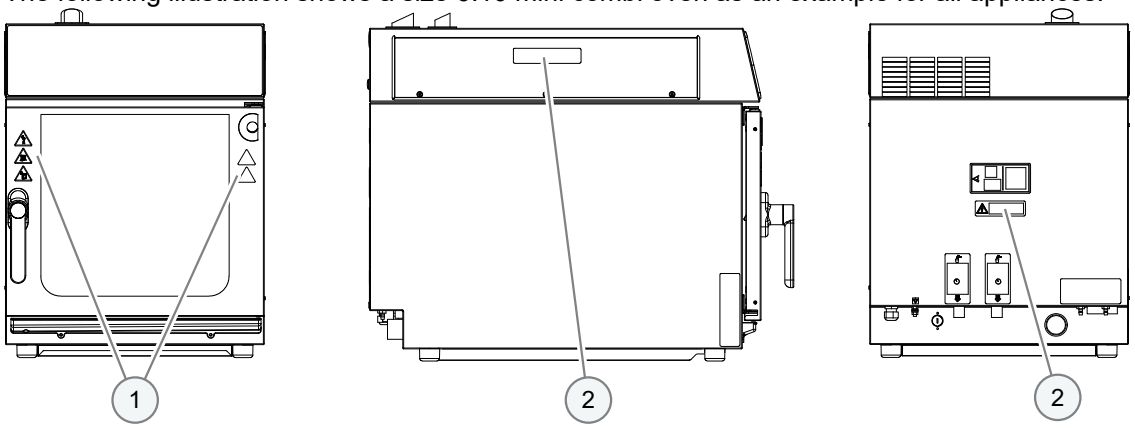
Cleaning requirements

- Use only cleaning agents that have been approved by the manufacturer.
- High-pressure cleaners must NOT be used for cleaning.
- Water jets must NOT be used for cleaning the exterior. The water spray from the recoil hand shower must only be used for cleaning the cooking chamber.
- The combi oven must NOT be treated with acids or exposed to acid fumes, except for the purpose of descaling the cooking chamber and the boiler by an authorized service company in accordance with the manufacturer's instructions.

3.3 Warning signs on the combi oven

Positioning of warning signs

The following illustration shows a size 6.10 mini combi oven as an example for all appliances:



Warnings on the appliance door

Warning signs (1) on the appliance door:

Warning sign	Description
	Warning of hot food, hot food containers and hot liquids There is a risk of burns from hot food and hot food containers if food containers tip out of the shelf levels or food slips off food containers that are not held level. This risk is particularly high for shelf levels that lie above the sightline of the user. Spillage of hot liquid foods can result in scalds if the upper shelf levels are loaded with liquids or foods that produce liquid during cooking. Do not use shelf levels that lie above your sightline for liquid foodstuffs or food that will liquefy during cooking.
	**Only for ConvoClean / ConvoClean+ option** Warning of corrosive cleaning agents injected into oven There is a risk of chemical burns or irritation to skin, eyes and respiratory system from contact with sprayed cleaning agents and their vapours if the appliance door is opened during fully automatic cleaning (ConvoClean system).
	Hot steam and vapour hazard warning There is a risk of scalding from hot steam and vapour escaping when the appliance door is opened.
	Tipping or toppling warning for combi oven There is a risk of the combi oven toppling over if moved. Always take great care when moving the combi oven.
	Damage or detachment warning for appliance connections There is a risk of the appliance connections being damaged or detached if the combi oven is moved. Always ensure there is enough length in the supply cables and pipes when moving the combi oven.

Warning signs on the combi oven case

Warning signs (2) on the combi oven case:

Warning sign	Description
	Warning of electric shock There is a risk of electric shock from live parts if the appliance cover is opened.

3.4 ⚠ Owner obligations

Personnel for working at the combi oven

The owner must ensure that all work relating to conveying, setting up and installing the appliance, and taking the appliance out of service, is performed solely by qualified personnel as specified in 'Requirements to be met by personnel, working positions' on page 21.

Personnel for working on electrical parts

The owner/operator must ensure that only qualified electricians carry out installation, putting into service, servicing, maintenance or repair work on the combi oven.

Electrical installation, putting into service, servicing, maintenance, repair and testing work on the combi ovens must be carried out solely by authorized service representatives and in accordance with the documentation specified by Convotherm for initial start-up, servicing, maintenance and repair.

The required tasks must be performed solely by qualified electricians who are suited to do so because of their training and recent professional experience and who have the requisite knowledge of relevant standards, rules and accident prevention regulations.

Every qualified electrician who carries out installation, initial start-up, service, maintenance or repair work must have read and understood the installation manual.

Rules for working on electrical parts

The combi oven’s electrical connection must be made in accordance with the respective valid regulations, accepted engineering standards and the procedures listed in the installation manual.

Before putting the appliance into service and after any servicing, maintenance or repair work, electrical safeguards and all protective equipment (mechanical and electrical) must be checked for compliance and proper function, and, if stipulated by applicable regulations, relevant measurement-based verification and documentation provided.

Before starting any work, the appliance must be disconnected from the power supply, protected against being switched on again, and checked to verify that it is actually de-energized.

After de-energization has been ascertained, a waiting time of at least 15 minutes is mandatory to allow full discharge of the DC bus capacitors.

To ensure operational and functional safety, all electrical connections must be checked and all mandatory electrical tests required for putting the appliance into service and operating the appliance must be carried out.

3.5 ⚠ Hazards arising from the appliance

General rules for working with the appliance

The combi oven is designed to protect the user from all hazards that can reasonably be avoided by design measures.

The actual purpose of the combi oven, however, means that there are still residual risks; you must therefore take precautions to avoid them. A safety device can provide you with a certain degree of protection against some of these hazards. You must always ensure, however, that these safety devices are in place and in working order.

The nature of these residual risks and what effect they have are described below.

Moving heavy loads

When conveying and setting up the appliance, the following hazards can arise when moving heavy loads:

Risk of injury from overstressing your body

- When moving or lifting the appliance

How can I avoid the hazard?

- ▷ Use a forklift truck or pallet truck to place the appliance in the installation position or to move it to a new position
- ▷ When adjusting the appliance position, always use the correct number of persons and observe the limits specified for lifting and carrying (guide value: 15 to 55 kg max., depending on age and gender)
- ▷ Observe the local occupational safety regulations
- ▷ Wear personal protective equipment

Loss of stability of appliance

When conveying and setting up the appliance, the following hazards can arise when moving the appliance:

Risk of body parts being crushed if the appliance is dropped

When?

- When moving or lifting the appliance

How can I avoid the hazard?

- ▷ Use suitable handling gear
- ▷ Move the appliance slowly and carefully, and secure it against tipping over
- ▷ Be aware of the centre of gravity to keep the appliance balanced
- ▷ Avoid jolts

Live parts

The following hazards can arise at the appliance when performing any installation work:

Risk of electric shock from live parts

Where?

- Under covers
- Under the operating panel
- On the mains power lead

How can I avoid the hazard?

- ▷ Switch off all connections to the power supply
- ▷ Take protective measures at every power switch to ensure that the power cannot be switched on again
- ▷ Wait 15 minutes to allow the DC bus capacitors to discharge
- ▷ Ensure that all electrical connections are in perfect condition and fixed securely
- ▷ Make sure that the statutory safety checks have been carried out.

Contact with cleaning agents

The following hazards can arise at the appliance when performing any installation work:

Risk of chemical burns or irritation to skin, eyes and respiratory system from contact with cleaning agents and their fumes

When?

- When fitting the cleaning system
- When handling cleaning-fluid canisters
- When abrasive cleaning products are used

How can I avoid the hazard?

- ▷ Wear personal protective equipment
- ▷ Observe the labels on the cleaning agents and the relevant safety datasheets
- ▷ Always use the specified cleaning products

Sharp-edged sheet-metal parts

⚠WARNING

Risk of cuts from sharp-edged sheet-metal parts

Working with or behind sharp-edged sheet-metal parts may result in cuts to hands.

- ▷ Exercise caution.
- ▷ Wear personal protective equipment.

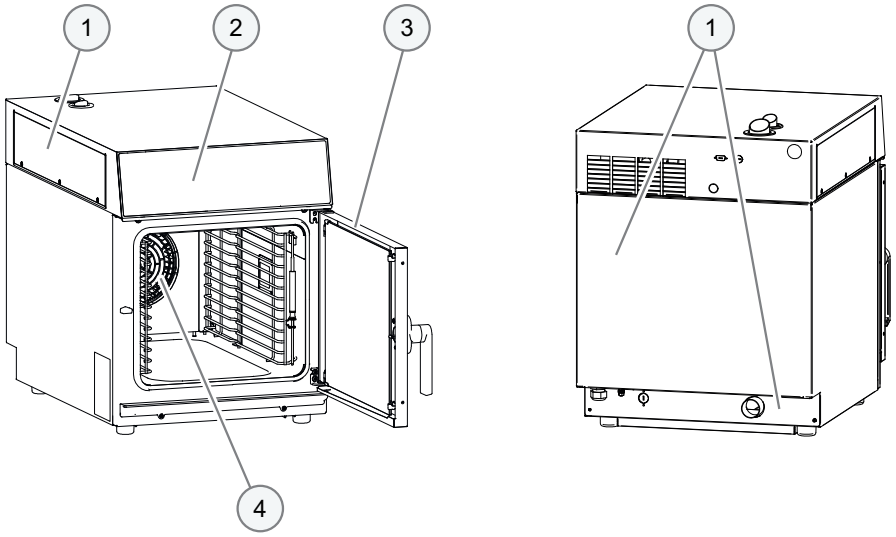
3.6 ⚠ Safety devices

Meaning

The combi oven has a number of safety devices to protect the user from hazards. It is absolutely essential that all safety devices are fitted, secured correctly and in working order when operating the combi oven.

Position and function

The following illustration shows a size 6.10 mini combi oven as an example for all appliances:



Item	Protective device	Function	Check
1	Covers can only be removed using a tool	▪ Prevents live parts from being touched accidentally ▪ Prevents access to the moving fan from the wiring compartment	Check that the covers are in place
2	Operating panel can only be removed using a tool	Prevents live parts from being touched accidentally	Ensure that the operating panel is in place
3	Appliance door	Protects the user and outside environment from hot steam	Check regularly for scratches, cracks, indentations etc. and replace door if any are found
4	Suction panel in cooking chamber; can only be removed using a tool	Prevents access to the moving fan and ensures good heat distribution	See 'Releasing and securing the suction panel' in the user manual
5 (no picture)	Safety thermostat for cooking chamber	Switches off the appliance if temperature too high	An error code is output in the event of a fault (Please contact an authorized service company to reset the safety thermostat)

Item	Protective device	Function	Check
6 (installed by customer)	Disconnector	▪ Installed by the customer close to the appliance; easily visible and accessible, all-pole action, minimum contact separation 3 mm ▪ Used to disconnect the appliance from the power supply during cleaning, repair and servicing work and in a hazardous situation	**Action:** ▪ Trip the disconnector ▪ Make sure that there is no live voltage at the mains supply connecting terminals

Safety measures

The following measures increase the safety additionally:

Measure	Function	Check
Magnetic switch for appliance door (electric door sensor)	▪ When the appliance door is opened, the switch stops: ▪ rotation of the fan wheel (comes to a stop after a few seconds) ▪ operation of the heating element ▪ Distribution of the cleaning agents by the fully automatic oven cleaning system ▪ Prompt to close the appliance door	Check magnetic door switch at low temperature **Action:** ▪ Open the appliance door fully ▪ Press Start **Result:** Motor must not start up.
Appliance door handle with venting position	▪ Prevents scalding of user's face and hands from escaping steam	When appliance is at low temperature, check door positions as described in 'Opening and closing the appliance door safely' in the user manual
Restart after power failure in case cleaning agent was left in the appliance	▪ Restarts fully automatic oven cleaning in a defined state after power failure	Test is a software function

3.7 ⚠ Requirements to be met by personnel, working positions

Requirements to be met by personnel

The table shows the skills required to perform the specified roles. One person may perform more than one role depending on need and organization of work, provided this person has the skills required for the role concerned.

Role	Skills required	Tasks
Owner of the combi oven or owner's member of staff who is responsible for the appliance and for the operating personnel	Knows the regulations associated with handling heavy loads	▪ As the representative for the entire team of operating personnel, is made aware of all safety-related functions and devices of the combi oven by the start-up engineer ▪ As the representative for the entire team of operating personnel, is instructed by the start-up engineer on how to operate the appliance ▪ Provides assistance as instructed with conveying the appliance within the establishment and setting up the appliance.
Equipment mover	▪ Trained in the use of a pallet truck and forklift truck ▪ Knows the regulations associated with handling heavy loads	Conveying within the establishment
Service engineer	▪ Is an employee of an authorized service company ▪ Has relevant technical training ▪ Is trained in the particular appliance ▪ Knows the regulations associated with handling heavy loads ▪ Can assess whether the electrical, water supplies and the wastewater system have been connected correctly.	▪ Setting up the appliance ▪ Installing the fully automatic oven cleaning system ▪ Putting the appliance into service ▪ Removing the appliance from service
Electrical installation engineer	▪ Is an employee of an authorized service company ▪ Has relevant professional training ▪ Is a qualified electrician and knows the applicable technical standards	▪ Connecting the appliance to the building's electrical supply ▪ Disconnecting the electrical connection
Plumber	▪ Is an employee of an authorized service company ▪ Has relevant professional training	▪ Connecting the appliance to the building's water supply ▪ Disconnecting the water connection ▪ Connecting the appliance to the building's drain connection ▪ Disconnecting the drain connection

Role	Skills required	Tasks
Start-up engineer (Service engineer)	▪ Is an employee of an authorized service company who has overall responsibility for preparing the combi oven for first-time use ▪ Has relevant technical training ▪ Is trained in the particular appliance ▪ Knows the regulations associated with handling heavy loads ▪ Can assess whether the connections to the electrical supply, water and wastewater system have been installed correctly, and knows the applicable technical standards.	▪ Instructing the owner and/or member of staff with relevant responsibility ▪ Checking the work procedures and status values against the checklists

Working positions when installing the appliance and putting the appliance into service

The working position for personnel installing the appliance and putting the appliance into service is the entire appliance area.

3.8 ⚠ Personal protective equipment

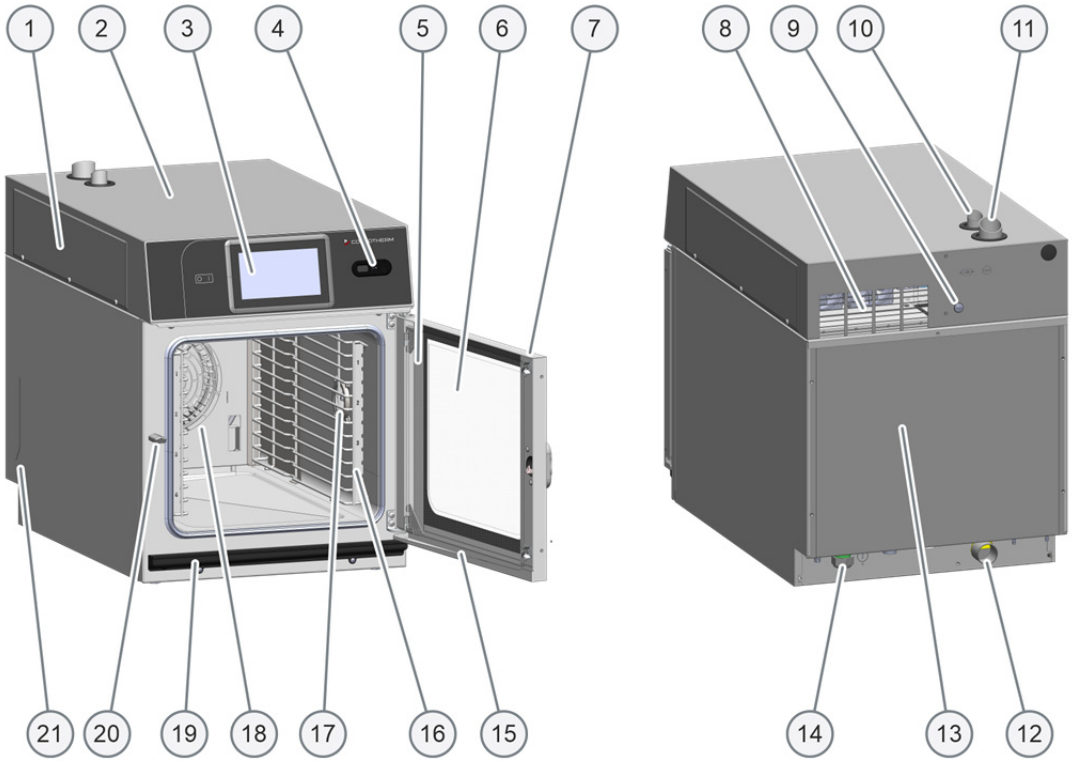
Servicing and repairs

Activity	Materials used	Personal protective equipment
Appliance descaling or oven cleaning of any kind Handling the containers for descaling products and cleaning products Removing and fitting appliance parts in the cleaning-fluid system or wastewater system	▪ ConvoCal forte ▪ ConvoCal ▪ ConvoClean forte ▪ ConvoClean new ▪ ConvoCare K (concentrate) ▪ ConvoCare	Items of protection equipment, depending on the descaling and cleaning products being used: ▪ Breathing mask ▪ Safety goggles ▪ Protective gloves ▪ Protective clothing/apron The EC safety datasheet for the relevant descaling agent and cleaning agent contains a more precise specification of these items. An up-to-date copy can be obtained from the manufacturer. Refer to the labels on the descaling and cleaning products concerned.
▪ Removing and fitting appliance parts ▪ Replacing appliance parts ▪ All repair work	Tools and equipment depend on the task	Work wear and personal protective equipment depending on the job that needs doing as specified in national regulations, in particular: ▪ Protective gloves ▪ Safety boots ▪ Safety goggles

4 Design and function of the hardware

4.1 Design of the combi oven

Design of the combi oven

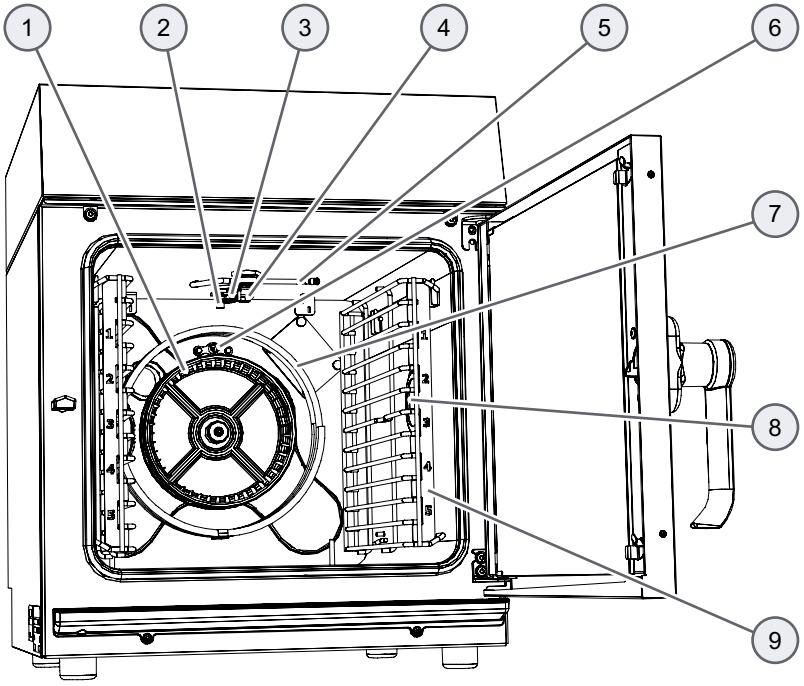


Parts of the combi oven

Item	Name
1	Side service flap, top box
2	Top box
3	easyTouch operating module
4	USB connection port
5	Door gasket fitted
6	Interior glass pane
7	Appliance door
8	Suction grille for electronics cooling air
9	Blind screw cap for safety thermostat
10	Steam vent pipe of condenser
11	Air intake for moisture removal
12	Drain connection for condenser box
13	Rear wall, rear service opening
14	Cable gland
15	Door drip tray
16	Rack (with CTC holder)
17	Oven light
18	Suction panel
19	Appliance drip tray
20	Appliance drip tray
21	External catch

4.2 Design and function of the cooking chamber

Construction of the cooking chamber

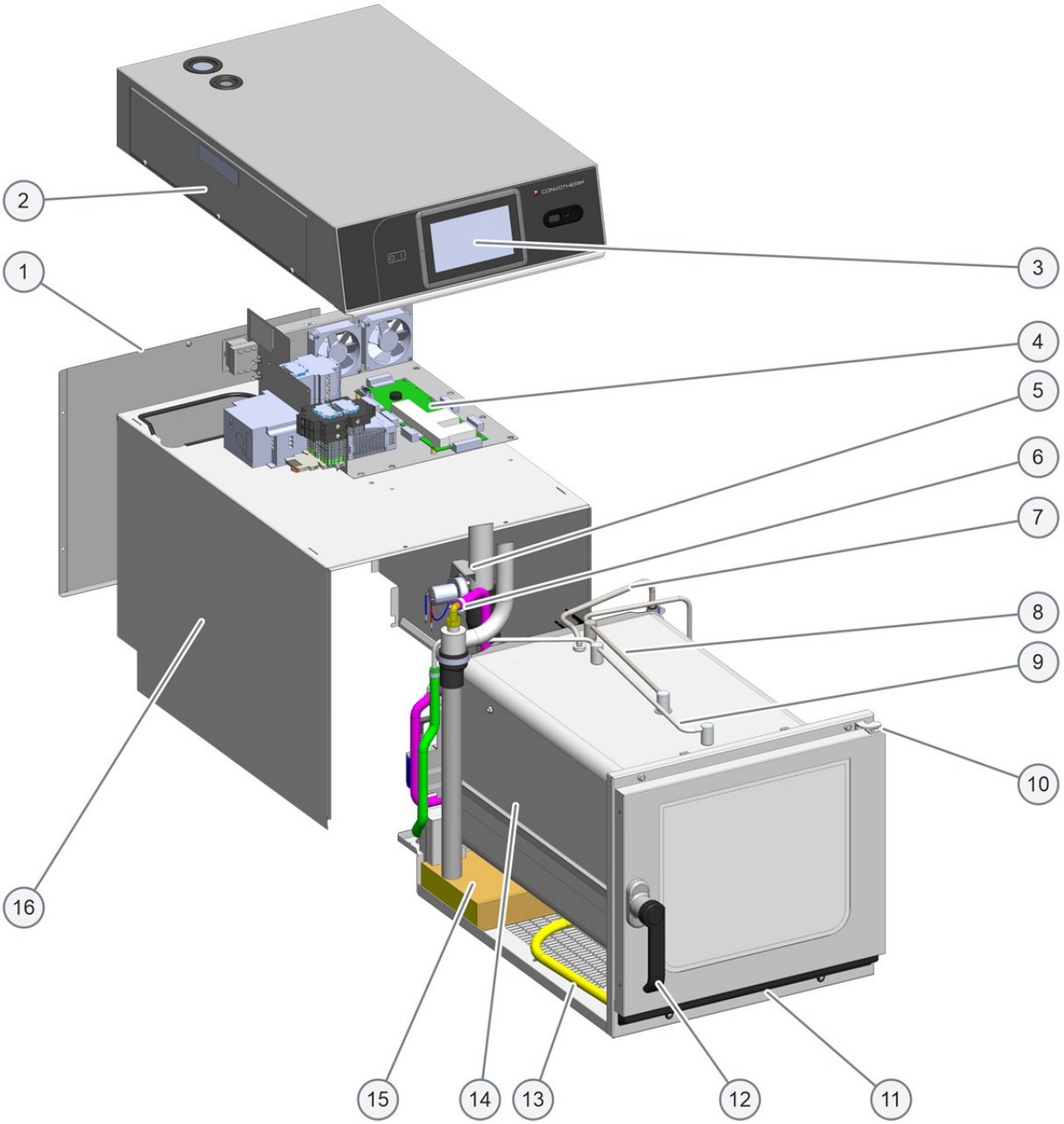


Parts of the cooking chamber

Item	Name	Function
1	Fan wheel	Circulates the air inside the cooking chamber
2	Injection nozzle	Brings water into the cooking chamber for steaming and cleaning
3	Sprinkler	Distributes water inside the cooking chamber
4	Cleaning-fluid nozzle	Distributes cleaning fluid behind the suction panel
5	Armature	Distributes cleaning fluid inside the cooking chamber
6	Oven sensor	Measures the temperature inside the oven
7	Heater	Heats the cooking chamber
8	Oven light	Illuminates the cooking chamber
9	Rack	Used to hold GN containers or baking sheets

4.3 Design and function of the appliance parts under the case

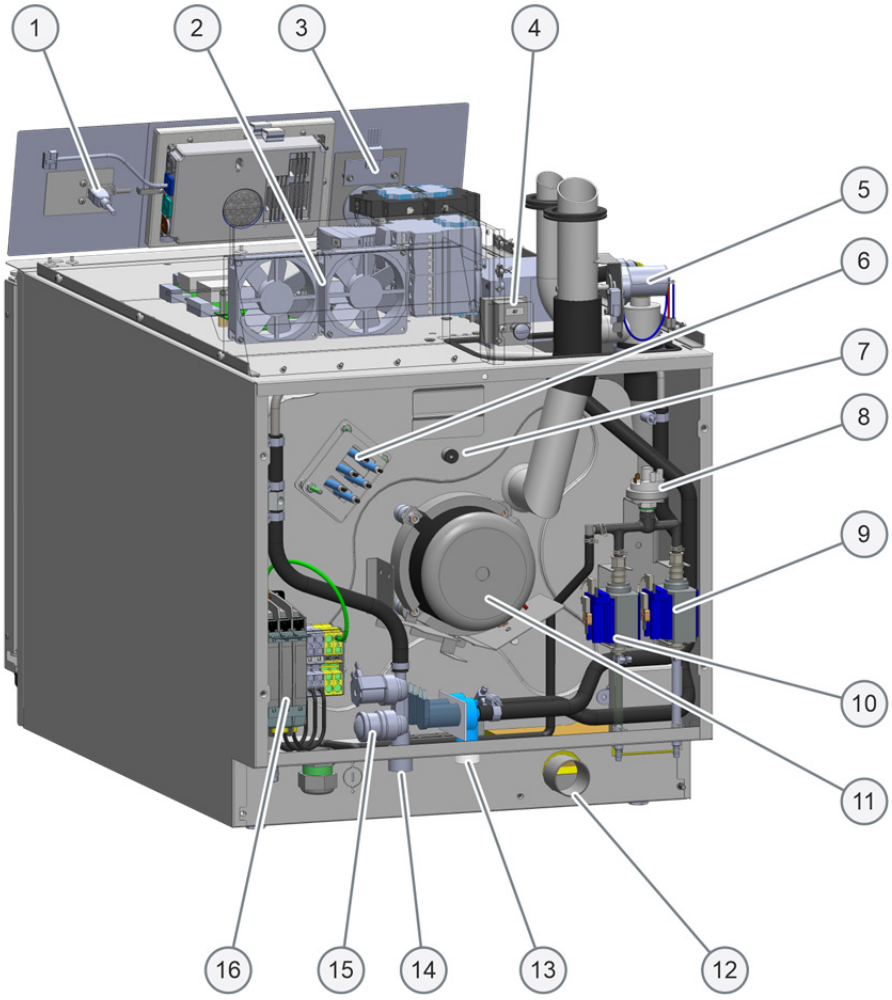
Construction of the appliance under the case (front view)



Parts of the appliance under the case (front view)

Item	Name
1	Service flap on the back
2	Side service opening on the top box, removable
3	easyTouch operating module
4	Electrical mounting plate
5	Dehumidifier valve
6	Injection nozzle for quenching
7	Steam generation injection line
8	Cleaning agent pipe
9	Water rinsing line
10	Door hinge
11	Door drip tray
12	Door handle
13	Appliance drip tray drain hose
14	Insulated cooking chamber
15	Condenser box
16	Outer casing

Construction of the appliance under the case (rear view)

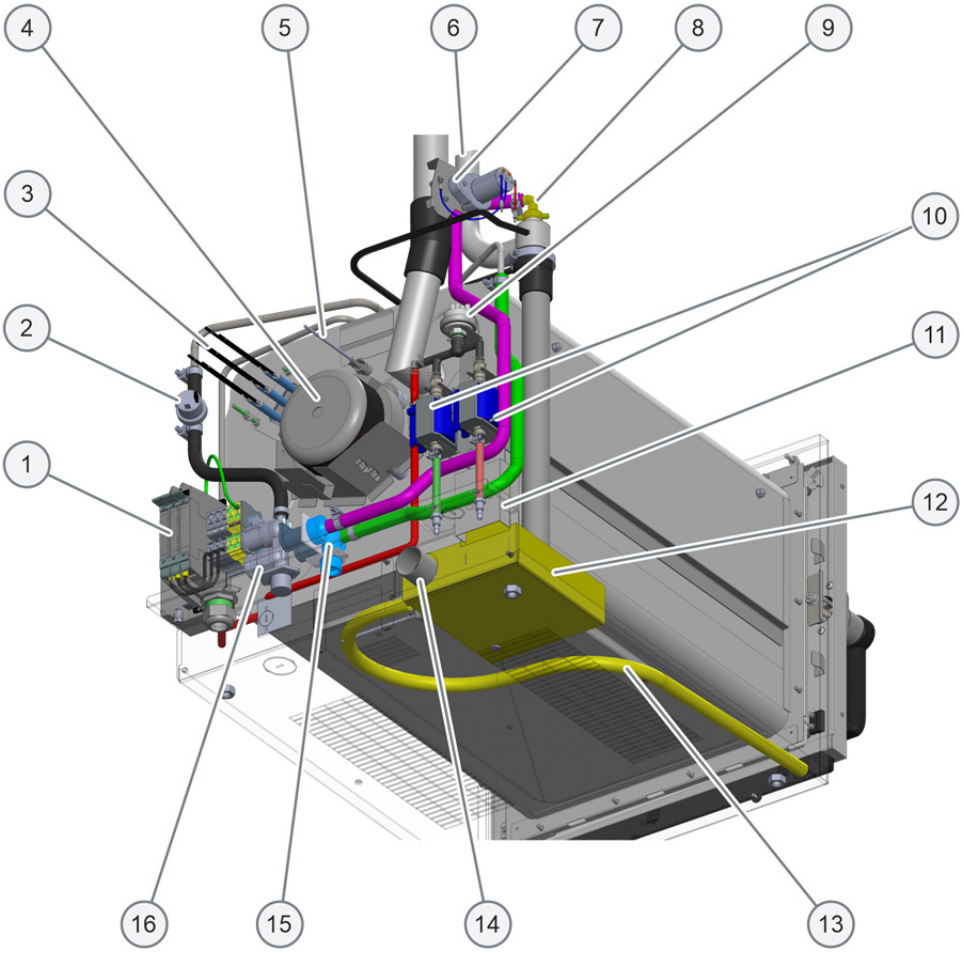


Parts of the appliance under the case (rear view)

Item	Name
1	USB connection port
2	Electronic cooling fan
3	Appliance switch
4	Cooking chamber safety thermostat
5	Dehumidifier valve motor
6	Cooking chamber tubular heater
7	Cooking chamber temperature sensor
8	Cleaning agent pressure switch
9	ConvoClean pump
10	ConvoCare pump
11	Motor
12	Drain connection on the condenser box
13	Connection for untreated water
14	Connection for soft water
15	Solenoid valve with pressure regulator unit
16	Mains filter

4.4 Layout and function of the appliance rear

Layout of the appliance rear



Parts of the appliance rear

Item	Name
1	Mains input filter
2	Injection pressure switch
3	Cooking-chamber heating element
4	Motor
5	Cooking chamber temperature sensor
6	Steam vent pipe
7	Dehumidifier valve
8	Waste-water cooling
9	Cleaning agent pressure switch
10	Cleaning-product dispensing pumps
11	Emergency overflow
12	Condenser box
13	Hosing for appliance drip tray
14	Drain connection
15	Quenching solenoid valve / Water rinsing of cleaning system
16	Solenoid valve with pressure regulator for injection

5 Operating principles

5.1 Oven heating

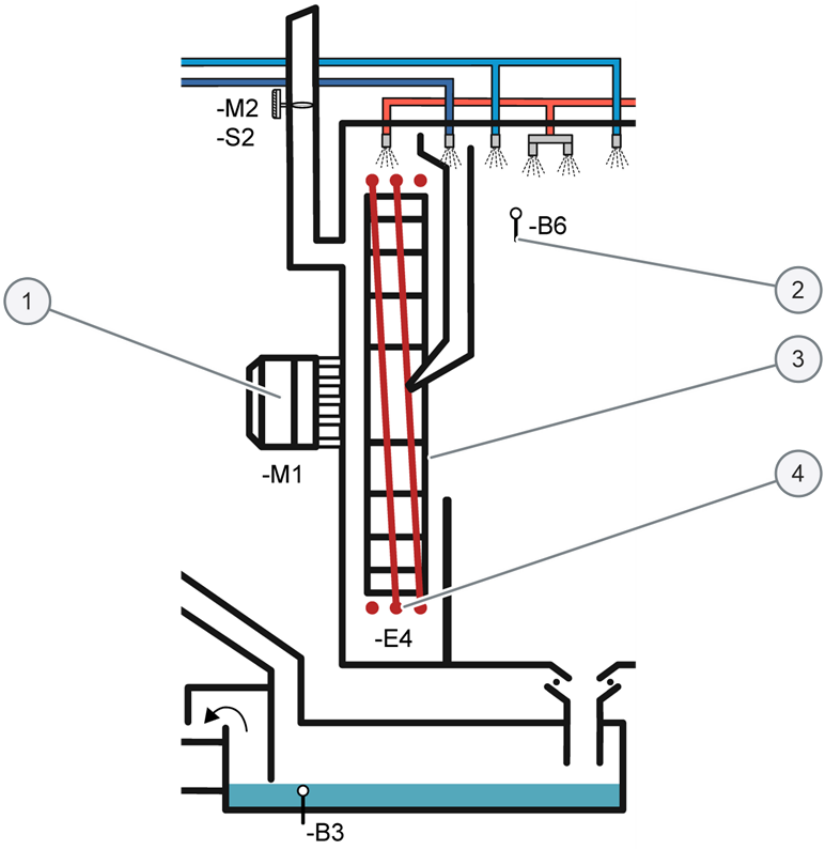
With the convection cooking method, the cooking chamber is heated by the **cooking-chamber heating element** -E4.

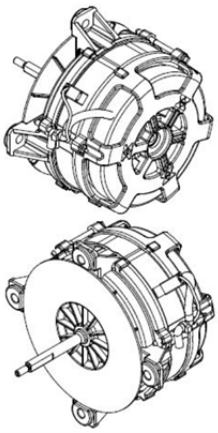
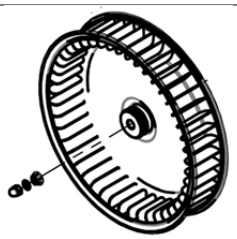
The heater is switched on and off under the control of the oven temperature sensor -B3, which switches on the associated heating element -E4 via the contactor -K4 when the cooking-chamber temperature drops below the setpoint temperature.

The fan motor drives the fan wheel via the motor shaft, and the fan wheel circulates the air around the cooking chamber to achieve an even temperature and steam distribution and hence optimum energy transfer.

The speed and direction of rotation of the fan motor -M1 is controlled by the variable frequency drive -U10 according to the settings made by the program or user. The variable frequency drive also performs the electrical motor protection function.

The program is stopped automatically once the set time/CTC target temperature (core temperature probe -B10, optional) is reached. This also stops the heating and the motor rotation.



Item	Description
1	**Motor** drives the fan wheel. The motor shaft is sealed against the cooking-chamber wall by means of a labyrinth seal. **Installation tip:** The seal is lubricated by means of silicon lubricant (OKS 1149) on the shaft. The four mounting nuts which secure the motor must be tightened with a tightening torque of 5.0 Nm. 
2	**Cooking-chamber temperature sensor -B6** signals the temperature in the cooking chamber to the electronics, and enables/disables the heat requirement signal to the heaters.
3	**Fan wheel** delivers the necessary air turbulence for optimum energy distribution and even baking and cooking results. Distributes the washing water during cleaning. **Installation tip:** Screw tightening torque of 2.5 Nm. After the first thermal loading of 250 °C, retighten to a torque of 2.5 Nm. 
4	**Tubular heater (-E4)** is controlled by means of multiple phases. The connecting wires are routed to the contactor terminals and connected in a star or delta arrangement depending on the mains voltage.
5 (no pic-ture)	**Heater contactor** A contactor for the heater switches the phases on and off.

6 **Frequency converter (-U10)**

(also referred to as the frequency converter) drives the motor at different defined speeds and reverses the direction of rotation based on the settings. The variable frequency drive provides the overload protection function for the motor and forwards any collective error messages to the controller.

In a cooking program using a oven temperature of less than 99 °C (LT cooking, default value of 99 °C can be changed in the settings), the motor pulsates briefly every 60 seconds for 2 seconds. This reduced amount of fan motion is ideal for low-temperature cooking as it has a gentle action on the product while also reducing the energy consumption for prolonged cooking times.

The frequency converter has its own 7-segment display to show the status.

In the STOP mode, it displays rdy.

In the START mode, it displays the respective frequency.

*A letter combination is shown in the event of an error. Its meaning can be found in the chapter Error messages.

Speeds:

Frequency	Speeds	Level
50 Hz	3000 rpm	Full speed
25 Hz	1500 rpm	Reduced speed
Fan pulsed		LT cooking

5.2 Function of the dehumidifier valve

In the initial state of every cooking program, the dehumidifier valve is closed. The product moisture that is created remains in the cooking-chamber climate.

The dehumidification function can be used during a convection program to dry the cooking-chamber climate to one of three levels.

To use this effect, the dehumidifier valve is opened to one of three different venting positions with Crisp&Tasty – cold air from outside the appliance is drawn in by the suction of the rotating fan wheel and forced through the cooking chamber downwards into the condenser box.The current of cool air facilitates condensation, flows into the condenser box and thereby reduces the amount of steam in the cooking chamber. Steam that has not condensed escapes from the condenser box into the air vent or is guided to an extraction hood.

Moisture removal level 1	Damper is opened by 30°
Moisture removal level 2	Damper is opened by 45°
Moisture removal level 3	Damper is opened by 90°
Moisture removal Off	Damper closes the air vent

The microswitch is attached to the gear unit of the damper and records the closed and open states of the damper. The damper is initialized when the appliance is switched on. It moves through the closed contact point and tests the duration required for the damper to rotate 180° until it is once again closed, and then it remains closed. The result of the time test for one rotation is used for the angular position of the damper.

If the switch is not actuated in the case of an error, error number E16.0 is displayed.

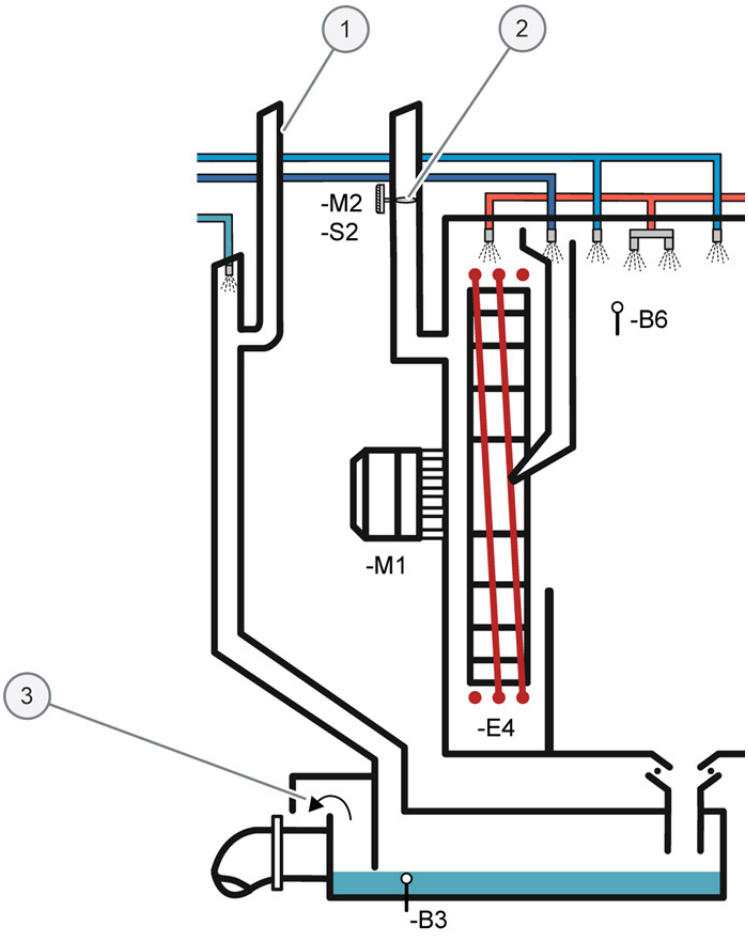
Automatic pressure reduction in the cooking chamber

Automatic damper opening can be activated in the service menu to reduce the pressure in the cooking chamber after "Door OPEN". This counteracts the undesirable effect of condenser sloshing at the door drip tray or from the emergency overflow.

This function takes effect as of an oven temperature of more than 100 °C.

Setting

mini Standard (until April 2022) easyTouch (until April 2022)	**Service menu** ▪ C12: 300 ▪ C13: 930
7"HD easyTouch (from April 2022)	**Service menu** Settings → Service → System configuration → xxx xx Flap Reduce Overpressure → yes


1
2
-M2
-S2
-B6
-M1
-E4
3
-B3

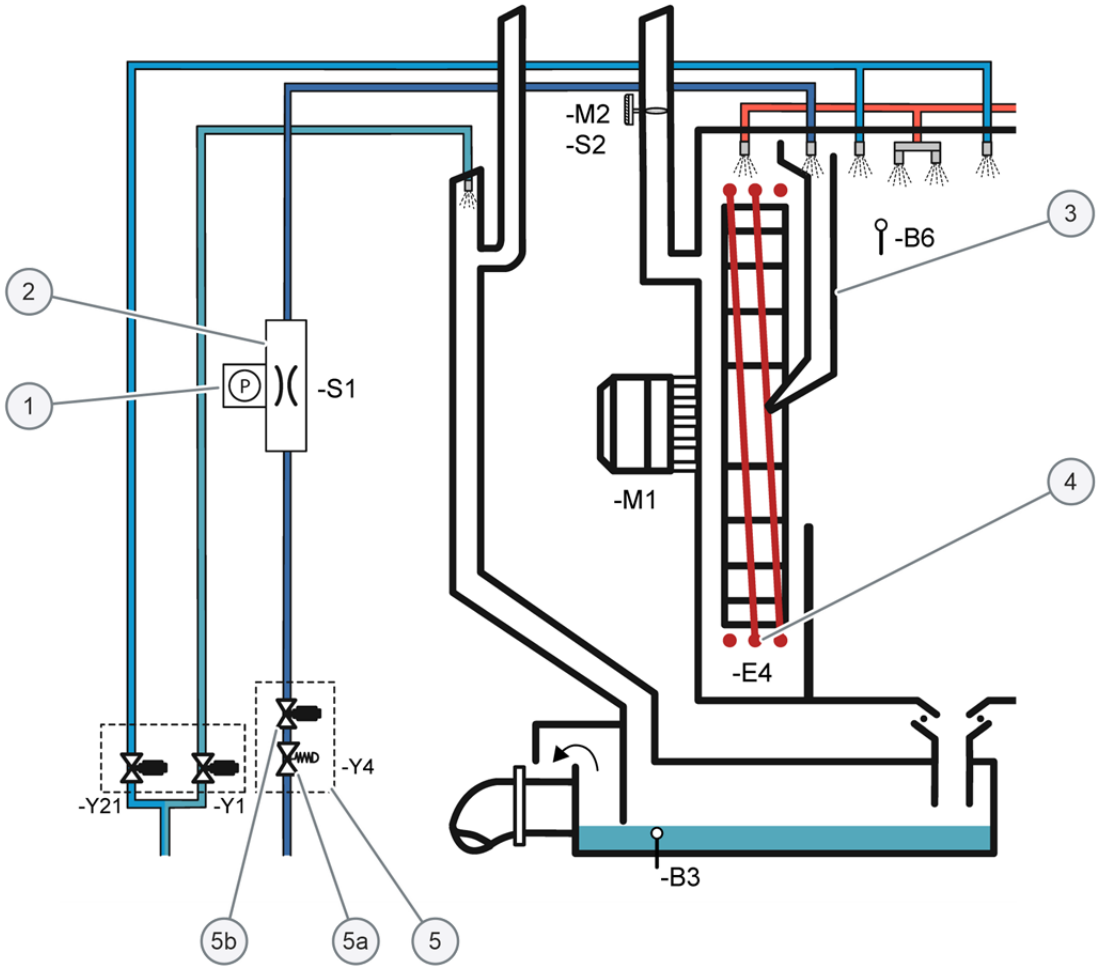
Item	Description	Values
1	**Steam vent pipe** Guides any uncondensed steam from the cooking chamber out of the condenser box into the surrounding air or into an extractor system.	
2	**Dehumidifier valve (-M2)** Opens the diaphragm with a 12 V motor gear unit for the purpose of moisture removal (Crisp&Tasty). Fresh air from outside the appliance is thereby drawn into the cooking chamber via the intake pipe. The flow of incoming cool air condenses any steam in the cooking chamber, and draws it into the condenser box.	
3	**Emergency overflow**	

5.3 Injection system

The water injection system is used to produce steam.

Water is distributed in a time-controlled manner onto the hot surface of the heating element and in the cooking chamber via the injection pipe and with the help of the fan wheel blades. The amount of water injected is limited via the automatic pressure-control valve and the injection nozzle to ensure proper production of steam. Refer to the item 2 in the table.

The steam production is controlled via the respective time interval taken from the Operating parameters menu (Cooking; HumidityPro).

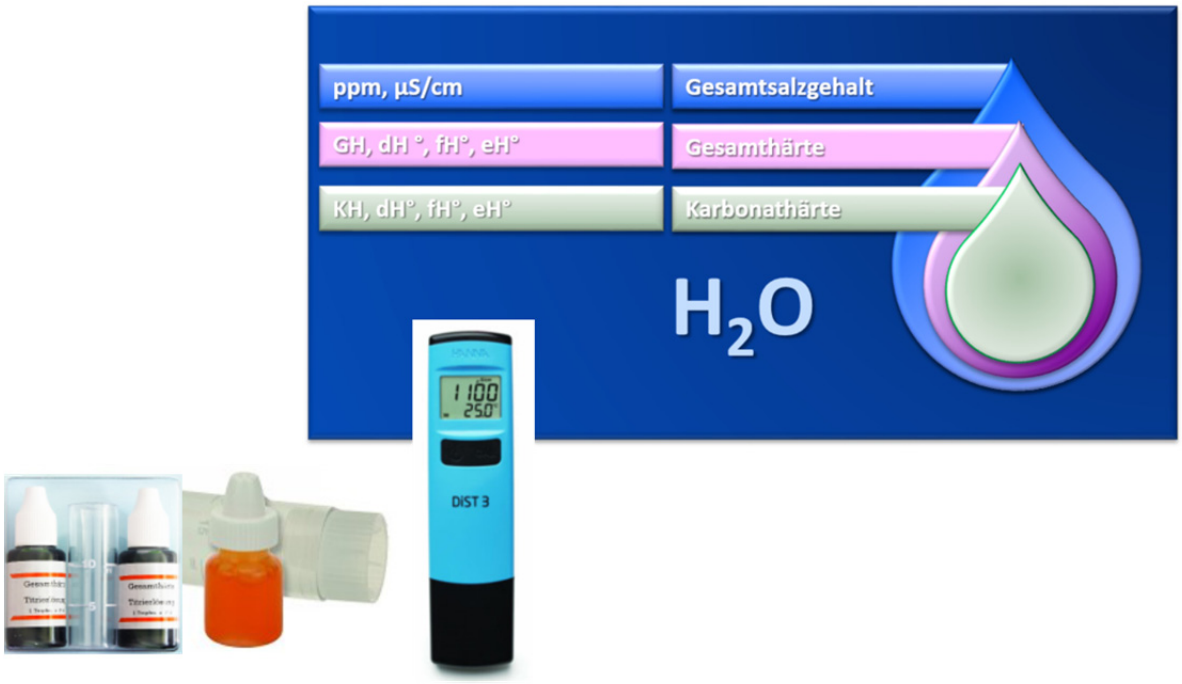


Item	Description	Values
1	**Pressure switch** monitors whether the water pressure in the injection line is sufficient. Error threshold: <= 0.5 bar **Pressure gauge** (on older appliances) indicates the water pressure between pressure regulator and injection nozzle. It is this pressure that actuates the pressure switch. **Error messages:** ▪ Monitor for sufficient water pressure → **E01.2** ▪ Monitor for blocked injection nozzle → **E63.0.0**	12 V DC
2	**Injection nozzle** nozzle that limits the jet of water. Nozzle in the top of the cooking chamber which brings water into the cooking chamber to generate steam. Water is vaporized on the oven heating element.	
3	**Injection line on the suction panel** Directs the injected water into the centre of the rotating fan wheel to distribute the water onto the oven heating element. Water is vaporized on the oven heating element.	
4	**Cooking-chamber heating element** heats the cooking chamber, whatever form of heating is used. It is used to generate both heat and steam.	
5	**Automatic pressure control valve for water injection**	
5a	**Pressure regulator** reduces the water flow pressure to a specified value (see table).	1.0-1.2 bar
5b	**Solenoid valve for injection** opens and closes to control the injection of water into the cooking chamber. Water is vaporized on the hot tubular heating element.	230 V
6 (no picture)	**Thermal cutout (STB)** Safety thermostat for limiting the temperature of the cooking-chamber heating element by switching off the heating contactor. If the safety thermostat has triggered, the motor, heater and solenoid valve will no longer function. The small button within the threads of the safety thermostat must be pressed to reset it.	340 °C

Appliance size	Nozzle (Ø mm)	Pressure (bar)	Water injection (l/min)
6.06	0.5	1.0	~0.18
6.10	0.5	1.0	~0.18
10.10	0.5	1.0	~0.18

5.4 Water quality

Test the water quality



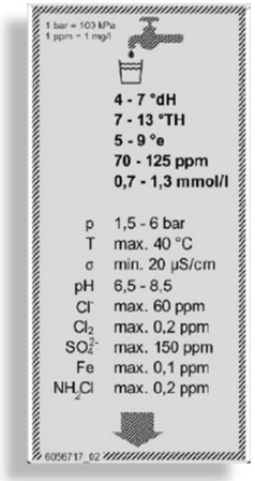
Härte dH	0°	4°	7°	20°	>27°
ppm	0	70	125	360	>486

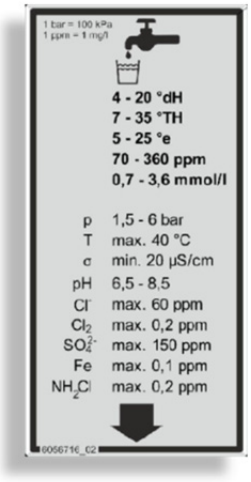
Water quality and water hardness

- Obtain information on the water quality and water hardness from your local water utility or test the water as described in the installation manual.
- If needed, use a suitable means of water treatment → We recommend installing a water filter.
- Make sure that the water hardness complies with the specified values after passing through the water-softening unit.

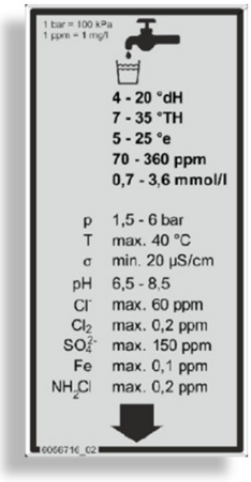
Water quality

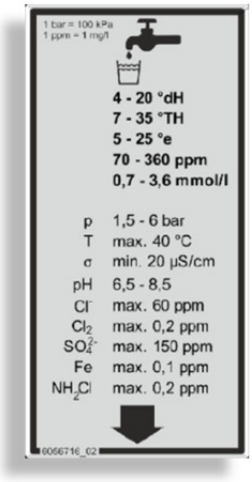
Electric / gas
Injection system





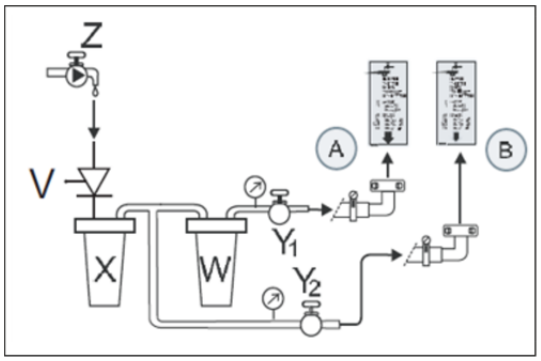
Electric / gas
Boiler



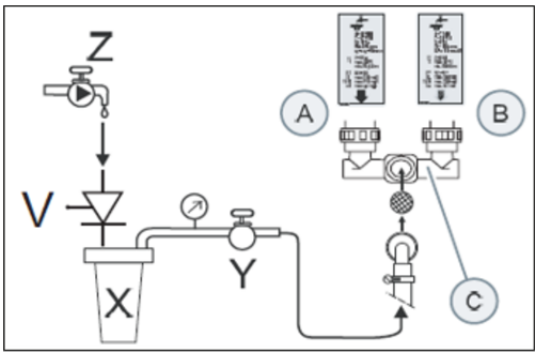


Water supply

With water softening for hard water
Separate water supply line for two connections



Without water softening for soft water
Double water connection for soft water supply line (T-piece 5011002)



5.5 Steam control

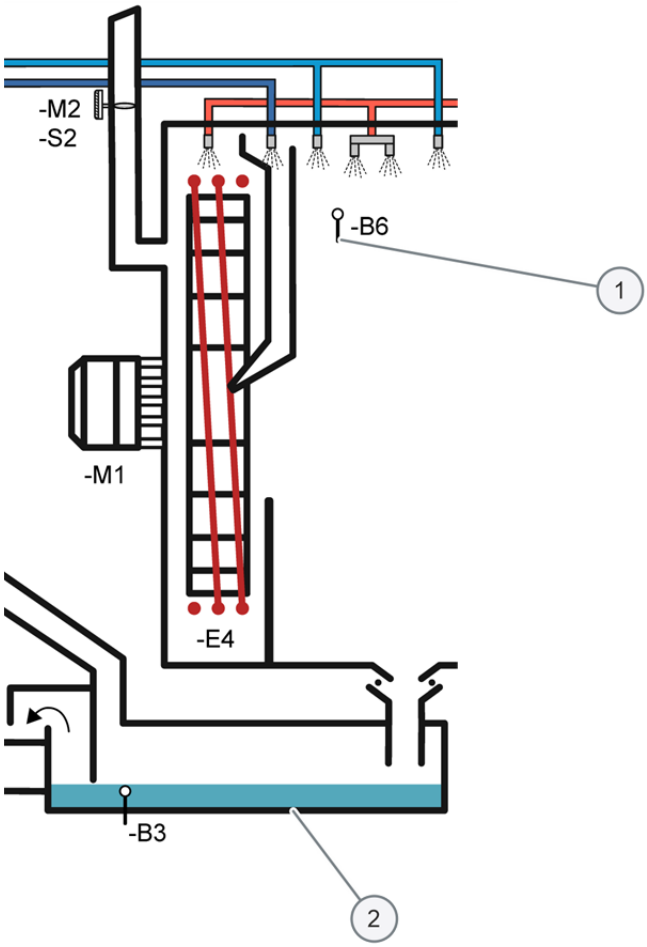
Automatic steam control

Moisture is introduced into the cooking chamber via the injection system. It is regulated by means of the prescribed time settings in the service menu. After certain timed pauses, the injection begins and produces new steam in the cooking chamber. The automatic steam control provides regulation for the steam and combi-steam programs.

The food product is kept in an environment of optimum humidity to prevent it drying out and to facilitate optimal energy transfer. As long as the cooking chamber or the product are still cool, the steam condenses on them and runs off. This process gradually transfers the energy and soon, the cooking chamber and the food will heat up to the point where no condensation any longer takes place.

Manual steam control

- **Humidity Pro** is the pulsed system used to gently moisturize the food in 3 selectable levels. Combi-steam program.
- **Bake Pro** provides humidification of special baked products with a subsequent defined fan pause in 3 selectable levels. Convection program.
- **Steaming** is a one-time manual injection of steam that introduces some moisture into the cooking chamber during the convection program.



Item	Description

1	**Oven temperature sensor** Controls the heat requirement.
2	**Condenser box** with water barrier. Retains an amount of collected water for cooling the waste-water.
3 (no picture)	**Oven gasket** incorporating hygienic seams, welded for tight seal. ▪ **Door gasket**, fitted and removable for cleaning ▪ **Motor shaft seal** with shaft sealing ring, spring and deflector ring ▪ **Lamp window gasket** ▪ **CTC (probe) gasket**

5.6 Condenser box

The water drain box in the Convotherm mini is called the **condenser box**.

There is always an amount of collected water in the condenser box which heats up during cooking due to the condensate from the cooking chamber.

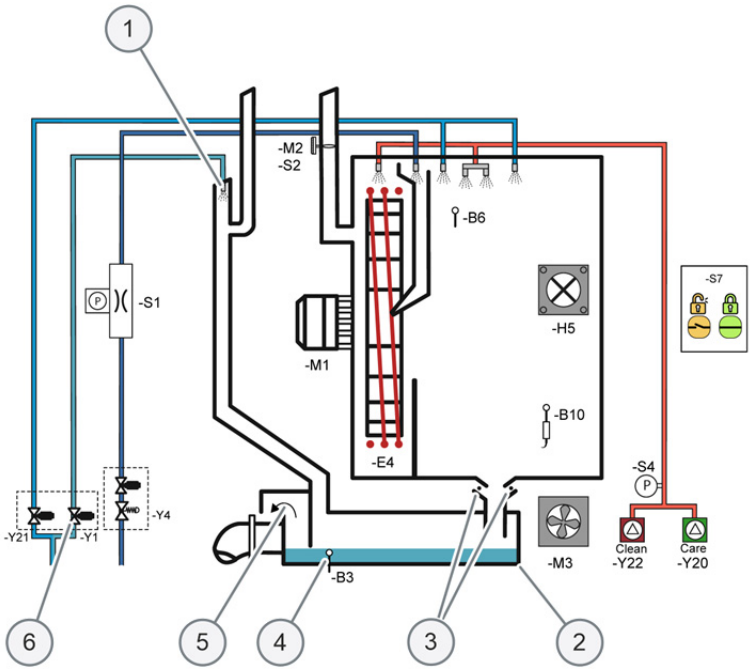
Every time the appliance is switched on, the quenching valve is activated for 20 seconds to fill the condenser box with water so that there is an adequate water barrier for regular operation.

To prevent:

- limescale build-up,
- a reduction of the vapour,
- harm to the wastewater piping,

the temperature of the condenser box is monitored by a temperature sensor, -B3. If the temperature is too high (over 68 °C), water solenoid valve -Y1 opens for water cooling and sprays cold water into the condenser via the steam vent pipe. It remains open until the retained collected water has been cooled to less than 68 °C. Once the temperature is below this value, the solenoid valve closes again. This quenching temperature value can be configured in the Service menu.

A positive side effect is the reduction of the steam vapour that escapes due to the cooling of the steam vent pipe. The mini Standard offers this extra function of "Vapour reduction" in the selection menu.

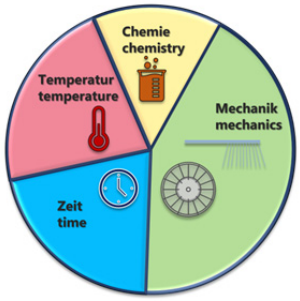


Item	Description	Values
1	**Injection nozzle into the steam vent pipe** this reduces the flow of water required for cooling to the necessary level.	
2	**Condenser box** is firmly screwed to the cooking chamber. The condensate water runs out of the cooking chamber into the condenser box and is there retained until the overflow threshold is reached before it drains further. The quenching temperature is measured in the condenser box and is cooled as needed	68 °C
3	**Sealing washer** Replaceable seal between condenser box and the cooking chamber drain	
4	**Condenser temperature sensor -B3** measures the temperature of the collected water in the condenser box to initiate quenching as needed.	
5	**Emergency overflow** In the event of a clogged drain pipe, water exits here to prevent any contamination of products in the cooking chamber due to backed up wastewater. This emergency overflow is mandatory.	
6	**Condenser-box solenoid valve (-Y1)** opens and closes to ensure adequate filling of the condenser box and cooling of the collected water.	230 V
7 (no picture)	**Appliance drip tray connection** Hose connection for the drain hose from the appliance drip tray and door drip tray	

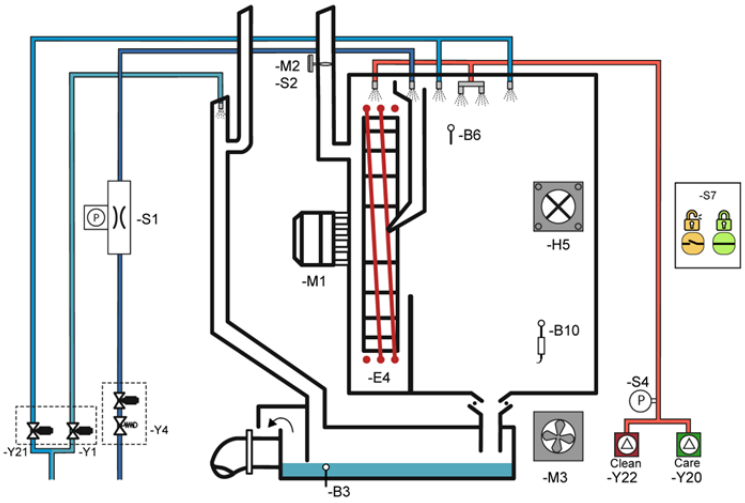
5.7 Cleaning

Flow-through system

Sinner's circle



Flow-through system



Features

- Cleaning agent is first sprayed undiluted through the armature nozzle onto the cooking-chamber wall and interior parts.
- The fan wheel also distributes the cleaning solution around the cooking chamber.

Advantages

- A very good emulsifying effect through the effect of the heat
- Low water consumption

Cleaning products

Convotherm cleaning products:


ConvoClean forte:
- 10 litre canister or 125 ml single-measure bottle
- Liquid cleaning agent for manual and fully automatic cleaning of the cooking chamber
- High cleaning strength


ConvoClean new:
- 10 litre canister or 125 ml single-measure bottle
- Liquid cleaning agent for manual and fully automatic cleaning of the cooking chamber; no hazardous materials; environmentally friendly
- Moderate cleaning strength


ConvoCare:
- 1 litre bottle or 125 ml single-measure bottle
- Rinse aid concentrate for the ConvoClean system; must be diluted in the specified mixing ratio

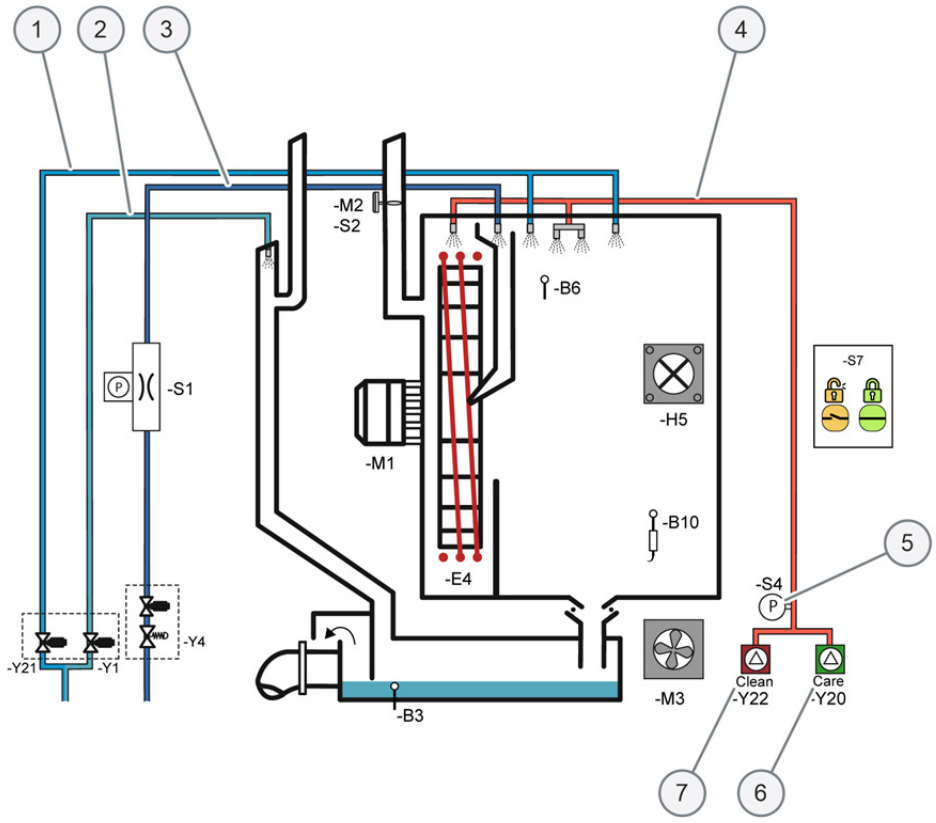
Convo Care (ready-to-use):
- 10-litre canister
- Rinse aid/neutralizer, ready-to-use

ConvoCare forte (ready-to-use):
- 10-litre canister
- Rinse aid, ready-to-use, for removing limescale residues
- Only for operation with hard water as of 20 °dH (German degrees of hardness)

Please note:

The guarantee is void in the event of damage caused by using cleaning products that are not approved by Convotherm.

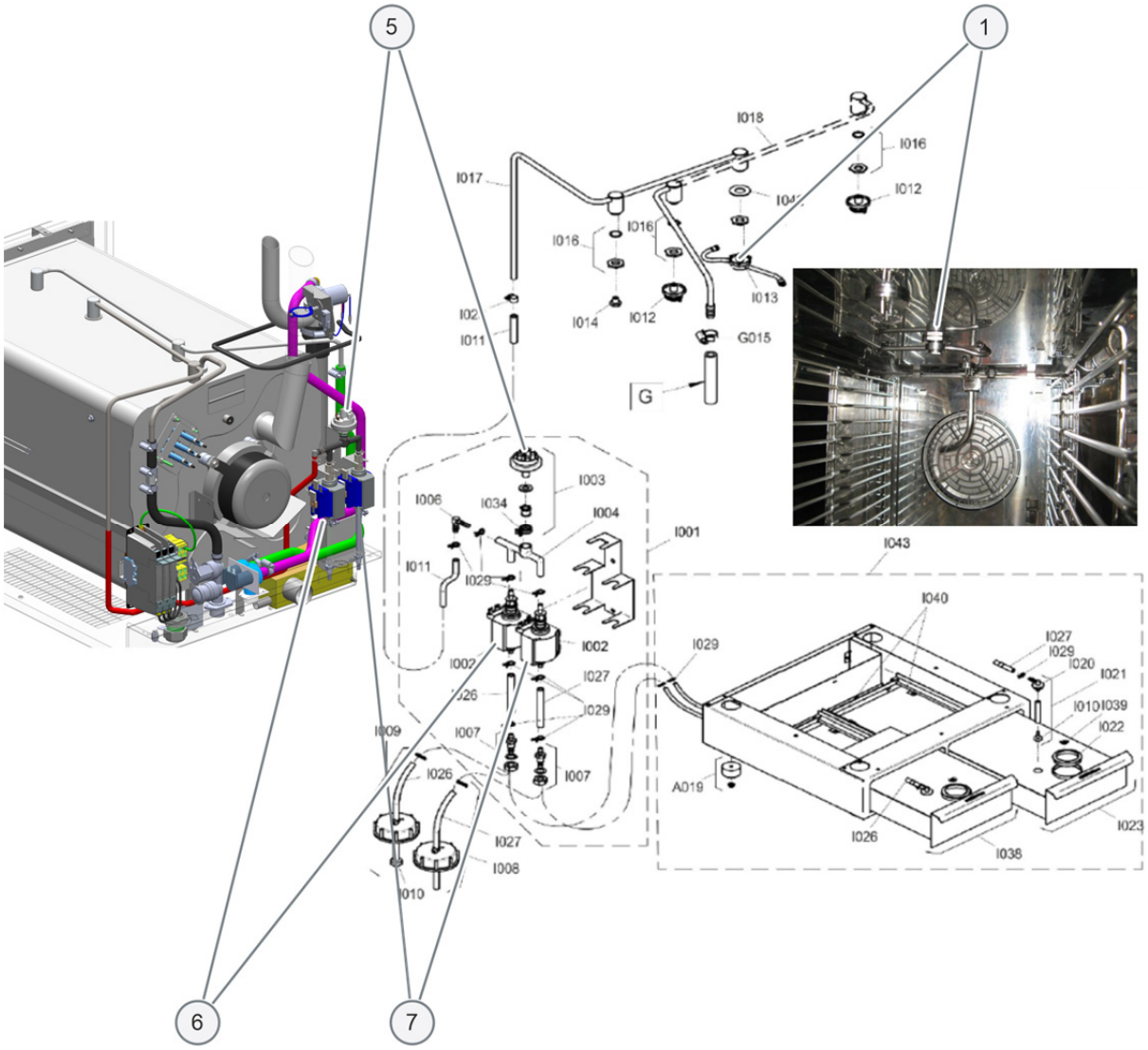
Flow diagram for water and cleaning



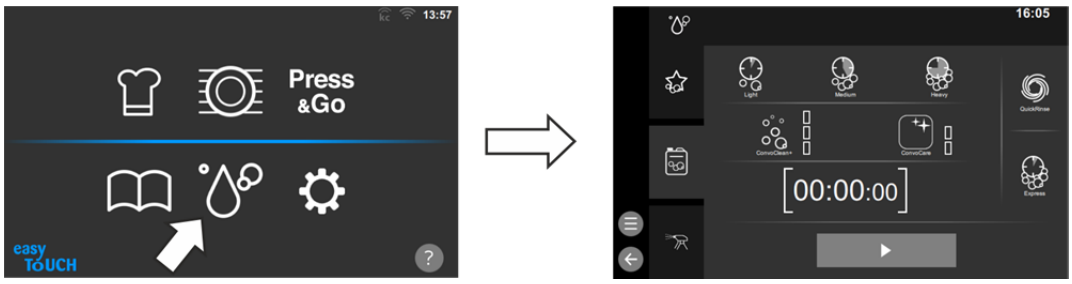
Item / CID	Name	Function
1 / I013	Water sprinkler nozzles	Sprays cleaning agent and rinse aid into the cooking chamber using a rotary movement
2	Condenser quenching	
3	Steam generation injector	
4	Cleaning agent pressure line	
5 / I003	Cleaning agent pressure switch ▪ mini: 120 mbar ▪ 2in1: 200 mbar	Monitors the cleaning-agent and rinse-aid pressure
6 / I002	Cleaning-agent dispensing pump ConvoCare K	Pumps and dispenses ConvoCare K into the cooking chamber
7 / I002	Cleaning-agent dispensing pump ConvoClean forte	Pumps and dispenses ConvoClean forte into the cooking chamber
I001	Cleaning-fluid pump unit	
I004	Pipe connector	Moulded hose for pump pressure side and pressure switch holder
I006	Right-angle pipe connector	
I011	EPDM pipe	
I012	Sprinkler nozzle	Spray nozzle for wash water
I014	Set of cleaning-fluid nozzles	Sprays cleaning agent and rinse aid onto the fan wheel for turbulent distribution
I016	Screw coupling	Fixing and sealing the piping

Item / CID	Name	Function
I017	Cleaner pipe	
I018	Water pipe	
I029	Wire clip	

Fully automatic cleaning system



Functional cleaning procedure



1	**Preparation for all cleaning levels**	▪ **START** ▪ **Remove foods from the cooking chamber, allow to cool as needed (limit value at 140°F, 70°C)** ▪ **Check the door contact switch** ▪ **Check the water** ▪ **Preheat**
2	**Cleaning**	▪ **ConvoClean injection → Pressure switch monitoring for correct dispensing of the cleaning solution** ▪ **Contact time for cleaning agent** ▪ **Steaming and dissolution of the greasy emulsion**
3	**Water rinsing**	▪ **Water rinsing** ▪ **The ConvoCare pressure switch is monitored for correct neutralization of the hosing with ConvoCare** ▪ **Water rinsing for cleaned cooking chamber**
4	**End**	▪ **The end of cleaning is shown on the display and an end signal tone is activated** ▪ **Confirm the "Cleaning finished" message to leave the window**

6 Electronics and software

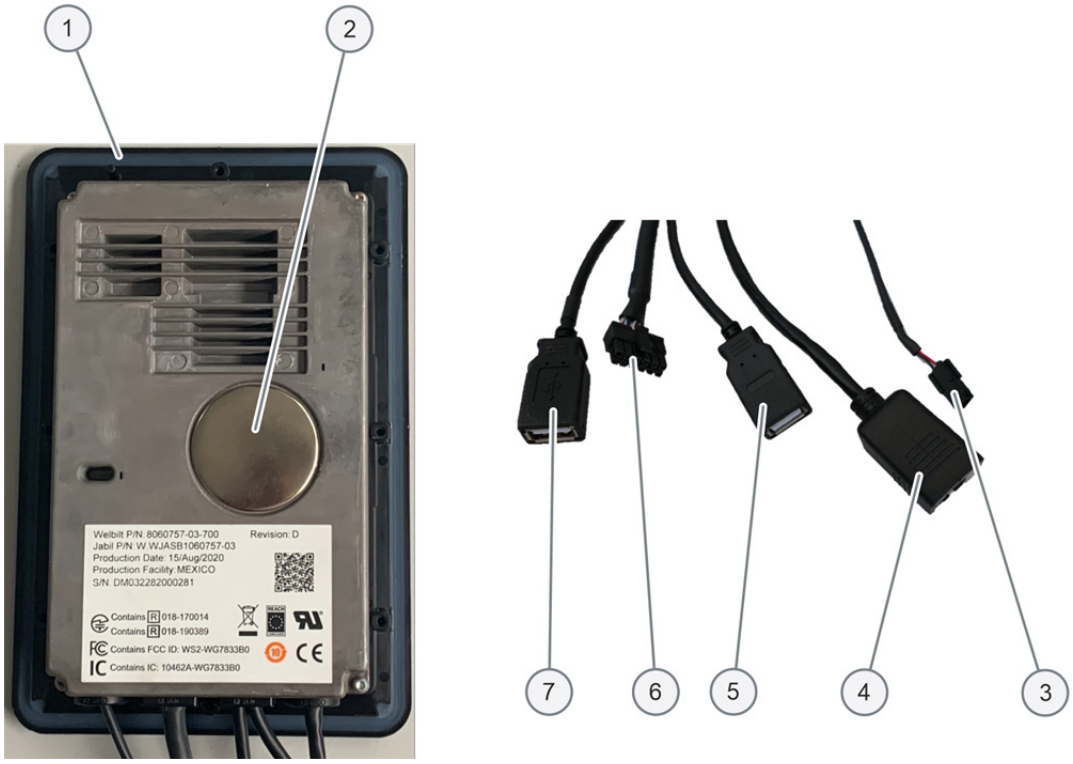
6.1 Design and function of the electronics

6.1.1 7" user interface

7" easyTouch

The easyTouch user interface, UI, has a 7” high-definition capacitive touch screen display. WiFi or LAN are supported. Operation is possible with bare fingers or with hygienic gloves.

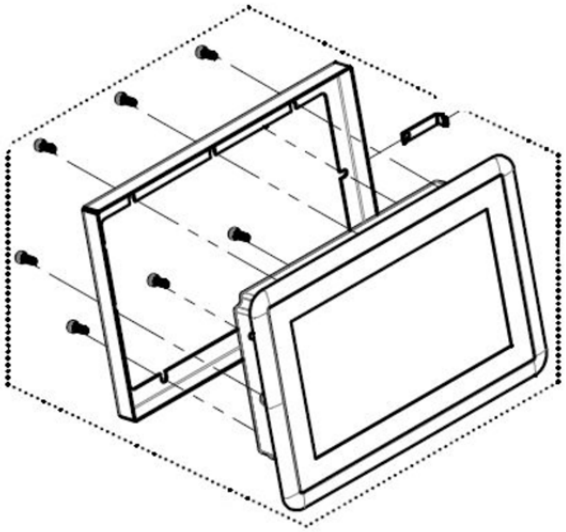
There is a loudspeaker for the acoustic signals in the front section of the top box.



Item	Description
1	**UI gasket** Seal between the user interface and the front panel
2	**Cover for SD card**
3	**Loudspeaker connection**
4	**Socket (RJ45)** Communication to the SIB
5	**Socket USB** Connection to the front panel
6	**Power supply for X10 and communication for SM -X18 (communication adapter RS-232 / RS-485)**
7	**Socket USB** Spare

Mounting the user interface in the appliance

Fit the user interface to the mounting frame using the appropriate screws.



6.1.2 SD card - Backup/Restore

General procedure

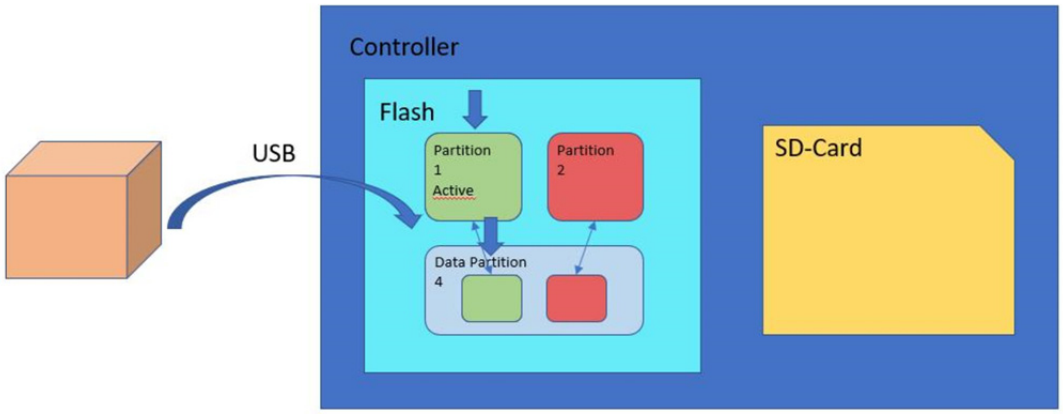
Every normal boot operation of a functional and previously set-up user interface uses the flash memory with one of its active partitions to load all data.

This includes:

- Board Support Package (BSP)
- Device software
- Cookbook settings

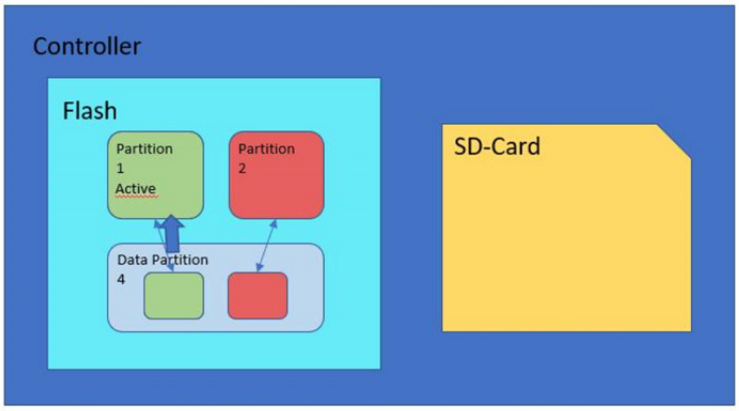
For a software update, data are saved to the partition of the flash memory that is currently not active. After successful completion, this partition is then marked as active.

The user interface operates using this partition of the flash memory that is marked as “Active”. The second partition is always used as the backup partition and backs up the running, operative system of the active partition for the event that a restore is required.

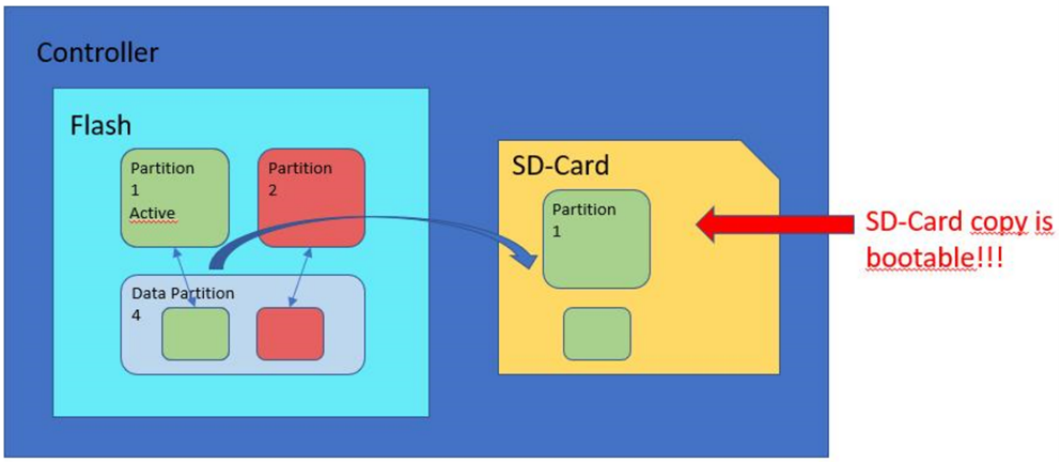


Behaviour in the event of a data error/corrupt file

If there is a data error or a corrupt file in the active partition, the most recently operative and mirrored system backup on the second partition is used to enable the continued functionality of the control display. This switch is not noticeable for the user.



An additional backup partition is mirrored to the SD card that is plugged in. This SD card is used for backup or can even be used to boot another UI.



Backup

In the unlikely event that both partitions of the internal flash memory become unusable, and even with the "Retry" function it is still not possible to restore the active partition, "Rollback" can be used to invoke the most recently functional mirror image from the SD card to restore the functionality of the UI.

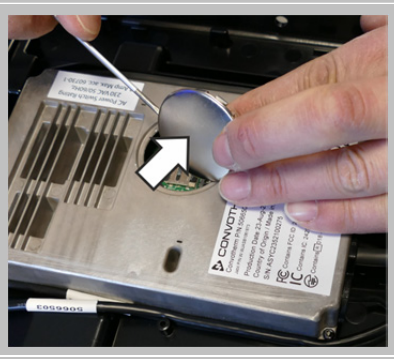
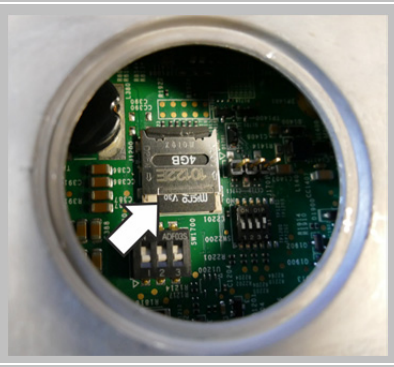
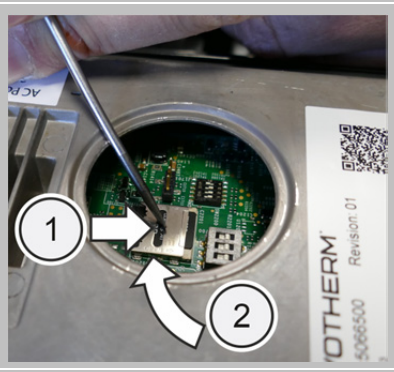
Retry:
Additional attempt to create a functional partition. This may be required after a software update.

Rollback:
Resets the system to an earlier backup version. This may also entail the device software resetting itself to an earlier software status and user-specific settings might need to be made again.

Replacement of the SD card

A system created by the user, along with all its settings, can be restored by means of a functional SD card from an earlier version of the user interface electronics that was operational. This is the recovery case in the event of a repair.

Please note: Follow EMC principles for all work on the UI board.

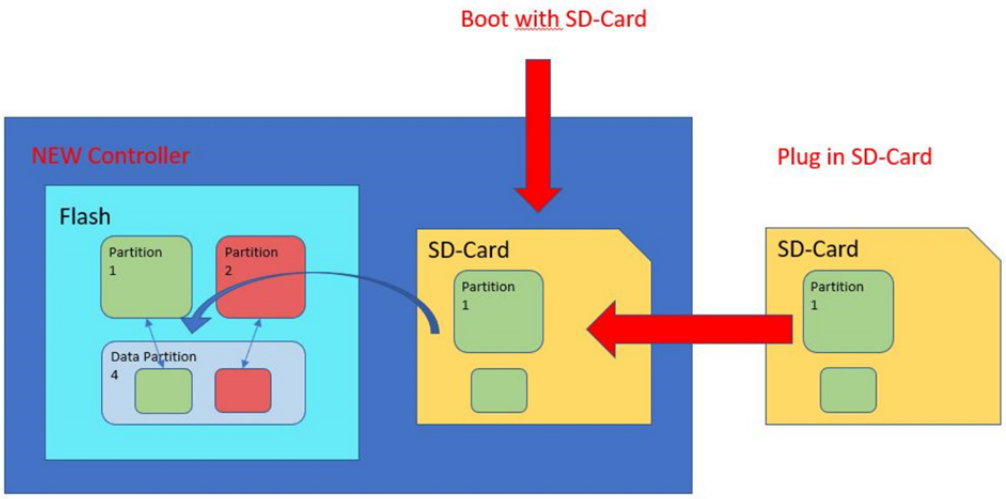
1.		Check that the following requirements have been met: ▪ The appliance has been disconnected from the power supply and protective measures taken to ensure the power cannot be switched on again. ▪ The UI board has been removed.
2.a		Remove the round cover from the back of the UI board.
2.b		The SD card with the backup data is located on the circuit board.
3.		Release the fastening mechanism by pushing lightly (1) and then fold it upwards (2).
4.		Remove the SD card and retain it for the backup restore. Use this SD card in the electronics of a new user interface so that your familiar settings can be used again in the software right away.
5.		Place the SD card with the backup into the new, functioning user face electronics.
6.		Install the user interface in the appliance and wire it up.
7.		Switch on the appliance and wait for the boot operation to complete.

8.a	**SD Card UUID does not match! Reinstall system from SD card?**	Confirm the system query with OK. The UI copies the recovery data from the SD card.
8.b	**Recovery: success! Rebooting...**	Confirm this with OK.
8.c	**Sorry, something went wrong.**	If this message appears: → Press "Retry" → Restart
9.		The user interface starts with the customary start screen. This completes the backup.

Boot operation

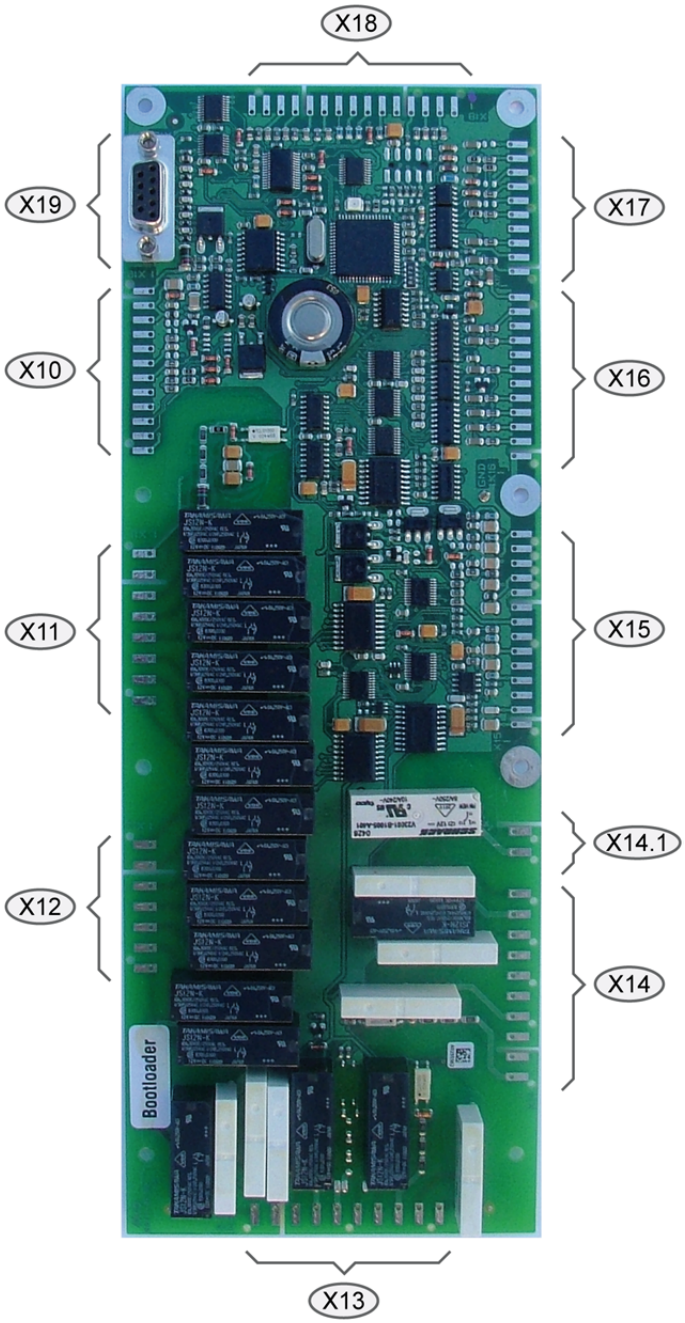
On the first boot operation of a UI, the flash data are compared with the SD card data and if the contents differ, a message appears as to whether the installation should be made from the SD card. When confirmed with “OK”, the valid data of the SD card are loaded to the flash memory and then used.

If, for repair reasons, a new and blank SD card (must be formatted in FAT) has been placed into the UI, the existing UI system will be mirrored to the SD card automatically, thereby setting it up. This operation can take some time and runs automatically in the background during general operations with the appliance.



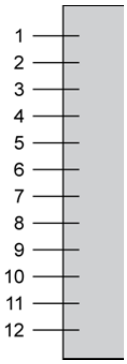
6.1.3 Component layout diagram for the control module

Component layout diagram for the control module



X10 PIN assignment

The X10 PIN assignment and its device ID (DID) in the electrical documentation:

X10	PIN	Name	Meaning	DID
	1	(-) Extra fan <BK>	Extra fan	-M3.1
	2	(+) Extra fan <RD>		-M3.2
	3	+12V <RD>	Supply for control module	-X10:3
	4	GND <BU>	Ground for control module	-X10:4
	5	unassigned	-	-
	6	unassigned	-	-
	7	unassigned	-	-
	8	unassigned	-	-
	9	Identification module (IDM) <BK>	Identification module	-A13:1
	10	Identification module (IDM) <WH>	Identification module	-A13:2
	11	Identification module (IDM) <BU>	Identification module	-A13:3
	12	Identification module (IDM) <RD>	Identification module	-A13:4

X11 PIN assignment

The X11 PIN assignment and its device ID (DID) in the electrical documentation:

X11	PIN	Name	Meaning	DID
	1	Motor thermal protection (motor TP)	▪ Thermal cutout ▪ Also signaling contact from frequency converter ▪ Converter error message	-M1 -U10
	2	Motor thermal protection (motor TP)		
	3	unassigned	-	-
	4	unassigned	-	-
	5	unassigned	-	-
	6	unassigned	-	-
	7	unassigned	-	-
	8	unassigned	-	-

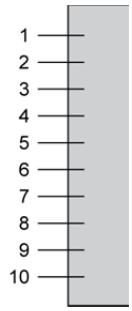
X12 PIN assignment

The X12 PIN assignment and its device ID (DID) in the electrical documentation:

X12	PIN	Name	Meaning	DID
	1	Phase	200 - 240 V AC supply	-F10:2
	2	Converter active LON active	Oven light	-U10 -KL
	3	convection heating 1	Hot-air heater	-K4 -E4
	4	SV injection	Solenoid valve for injection	-Y4
	5	MV condenser	Solenoid valve for condenser cooling	-Y1
	6	unassigned	-	-
	7	unassigned	-	-

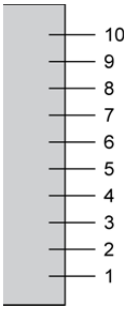
X13 PIN assignment

The X13 PIN assignment and its device ID (DID) in the electrical documentation:

X13	PIN	Name	Meaning	DID
	1	unassigned	-	-
	2	unassigned	-	-
	3	MV water (cleaning)	Solenoid valve for cleaning water (only with ConvoClean *system*)	-Y21
	4	Rinse-aid pump	Rinse-aid pump (only with Convo-Clean *system*)	-Y20
	5	unassigned	-	-
	6	Cleaning-agent pump	Cleaning-agent pump (only with ConvoClean *system*)	-Y22
	7	unassigned	-	-
	8	unassigned	-	-
	9	Dehumidifier-valve motor	Geared motor with valve flap	-M2
	10	+12V	Supply PIN 9	-

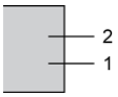
X14 PIN assignment

The X14 PIN assignment and its device ID (DID) in the electrical documentation:

X14	PIN	Name	Meaning	DID
	10	Frequency converter (3-wire FC) slow	Frequency converter, slow speed	-U10:LI3
	9	Frequency converter (3-wire FC) anti-clockwise	Direction of rotation, anti-clockwise, frequency converter	-U10:LI2
	8	Frequency converter (3-wire FC) clockwise	Direction of rotation, clockwise, frequency converter	-U10:LI1
	7	Frequency converter (3-wire FC) +24V	Supply PIN 8 - 10	-U10:+24 V
	6	unassigned	-	-
	5	unassigned	-	-
	4	Air purge	Air purge of the cleaning-agent pipe (only for cleaning system with air purge)	-Y25
	3	Phase	Supply PIN 4	-X10:30
	2	unassigned	-	-
	1	unassigned	-	-

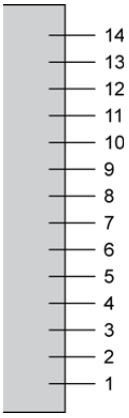
X14.1 PIN assignment

The X14.1 PIN assignment and its device ID (DID) in the electrical documentation:

X14.1	PIN	Name	Meaning	DID
	2	Cooking chamber light On	Oven light	-X10:51 -V5.1 -H5.1
	1	Phase	Supply, 200 - 240 V_{AC}	-X10:34

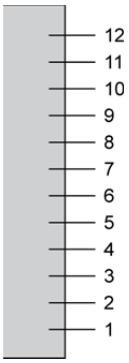
X15 PIN assignment

The X15 PIN assignment and its device ID (DID) in the electrical documentation:

X15	PIN	Name	Meaning	DID
	14	unassigned	-	-
	13	unassigned	-	-
	12	unassigned	-	-
	11	unassigned	-	-
	10	GND	Ground for cleaning agent pressure switch (only with ConvoClean *system*)	-S4:COM
	9	unassigned	-	-
	8	unassigned	-	-
	7	GND	Ground for dehumidifier-valve switch	-S2:NO
	6	Cleaning agent pressure switch	Cleaning (only with ConvoClean *system)*	-S4:NO
	5	GND	Ground for door contact switch	-S7:NO
	4	Appliance door	Door contact switch, door closed	-S7:COM
	3	GND	Ground for injection pressure switch	-S1:COM
	2	Dehumidifier-valve switch	Position switch for valve flap	-S2:COM
	1	Injection pressure switch	Water pressure for injection	-S1:NO

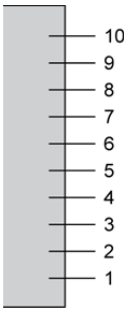
X16 PIN assignment

The X16 PIN assignment and its device ID (DID) in the electrical documentation:

X16	PIN	Name	Meaning	DID
	12	(-) condenser <WH>	Condenser temperature sensor	-B3
	11	(+) condenser <GN>		
	10	unassigned		
	9	unassigned		
	8	(-) cooking chamber <WH>	Oven temperature sensor	-B6
	7	(+) cooking chamber <GN>		
	6	(-) CTP minus	Core temperature probe minus (wh)	-B10
	5	CTP spare	unassigned	
	4	CTP 3	Core temperature probe point 3 (gn)	-B10
	3	CTP 2	Core temperature probe point 2 (ye)	-B10
	2	CTP 1	Core temperature probe point 1 (rd)	-B10
	1	CTP GRD	Core temperature probe (bu)	-B10

X17 PIN assignment

The X17 PIN assignment and its device ID (DID) in the electrical documentation:

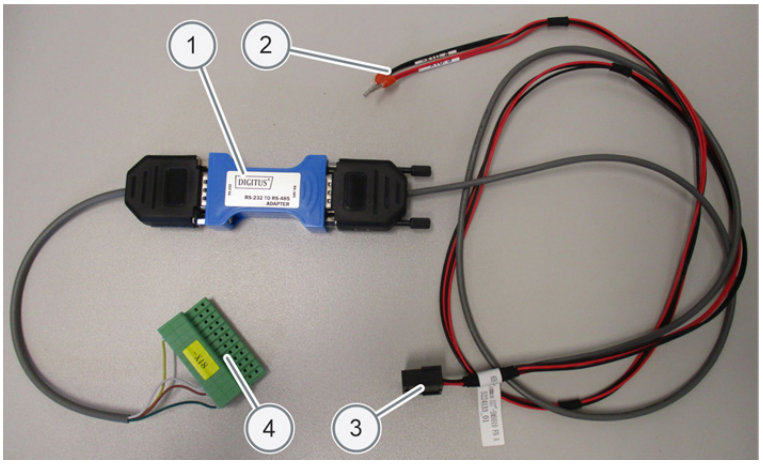
X17	PIN	Name	Meaning	DID
	10	unassigned	-	-
	9	unassigned	-	-
	8	unassigned	-	-
	7	unassigned	-	-
	6	unassigned	-	-
	5	unassigned	-	-
	4	unassigned	-	-
	3	unassigned	-	-
	2	unassigned	-	-
	1	unassigned	-	-

X18 PIN assignment

The X18 PIN assignment and its device ID (DID) in the electrical documentation:

X18	PIN	Name	Meaning	DID
	1	unassigned	-	-
	2	unassigned	-	-
	3	unassigned	-	-
	4	unassigned	-	-
	5	unassigned	-	-
	6	unassigned	-	-
	7	unassigned	-	-
	8	unassigned	-	
	9	RX <WH>	Data communication	-A11:13
	10	TX <BN>	Data communication	-A11:X13
	11	+12 V <RD>	Supply for operating module	-A11:X4
	12	GND <GN> GND <BU>	Ground for operating module	-A11:13 -A11:X4
	13			
	14			
	15			

Digitus RS adapter 5224133



Item	Description
1	**RS-232/485 communication adapter**
2	**-X10:** **3 (+12 V)** **4 (-12 V)** Power supply
3	**-J2** Connector for 7" easyTouch display
4	**-X18** Communication plug on control module

6.1.4 Identification module (IDM)

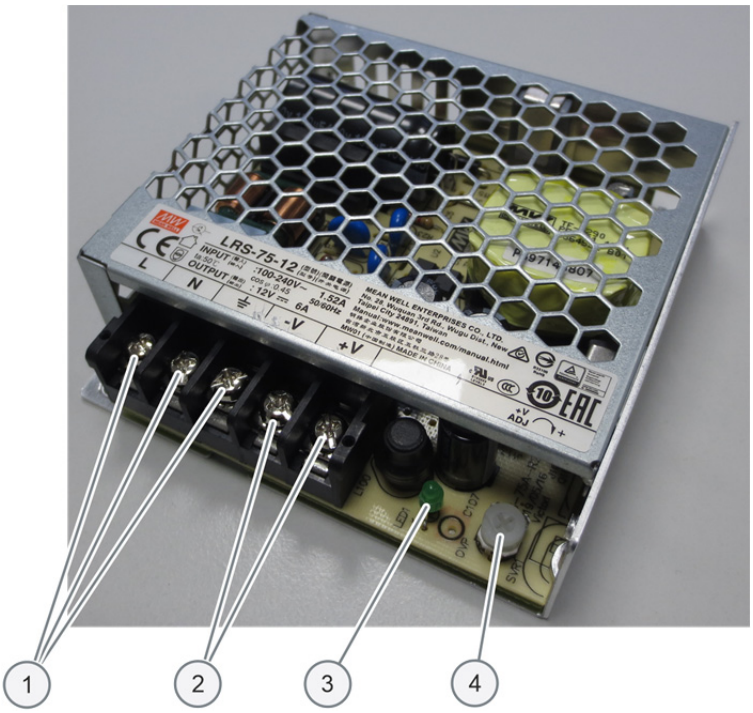
Every appliance has an identification module connected to the SIB, which activates the basic functions of the appliance and makes them accessible.

The IDM (identification module) contains an EEPROM which is loaded manually with the correct appliance configuration during production or in the event of use as a spare part.

When ordering spare parts, it is essential that the appliance serial number and the appliance part number be stated, as the specific appliance functions are coded in these numbers and number sequences. An IDM from one appliance cannot be exchanged with that of another appliance as it may have different functionalities and would cause malfunctions. The IDM remains in the appliance in the event the electronics are swapped out and it is permanently attached to the wiring harness.

6.1.5 Power supply module

The power supply module is supplied on the primary side with 230 V and outputs 12 VDC on the secondary side for a stabilized supply to the electronics, cooling fans, lighting and dehumidifier valve.



Item	Description	Values
1	**Primary connection contacts**	230 V
2	**Secondary connection contacts**	12 V DC
3	**Control LED** ▪ OFF: Without power or fuse is blown ▪ ON: The operating voltage is applied continuously ▪ FLASHING: Current limitation is active. Possible short-circuit or current draw on the secondary side is too high.	
4	**Potentiometer V Out** VR1 voltage adjustment 12 V +/-10 %	

6.2 easyTouch service menu

	**Device information**
	**General settings**
	**Sound**
	**Operating parameters**
	**Cookbook**
	**Network**
	**Logbook**
	**Service**
	**Legal information**

6.2.1 Device information

Appliance size
Serial number
Part number
Heating method
Steam generation method
Software package version
SIB hardware version
SIB software version
UI hardware version
UI software version
SM software version
Cookbook version
kitchenconnect version
API appliance interface version
Operating system version
Tunable version
SD card recognized
SD backup created

6.2.2 General settings

Language	
Date/Time	Time
	Month
	Year
	Day
	Time zone
Temperature units	Celsius
	Fahrenheit
Restore the system	Back up file
	Restore file
	Restore file from old system
Display	Delete bootlogo

6.2.3 Sound

Error message	Sound
	Time length
	Volume
Other messages	Sound
	Time length
	Volume
Door open during cleaning	Sound
	Time length
	Volume
Door open during cooking	Sound
	Time length
	Volume

6.2.4 Operating parameters

Cooking

510 00	Start-up interface Home Screen Press&Go Last-used cooking mode Press&Go or main menu	
10 07	Number of shelf levels	5
20 01	Biosteam: Oven temperature hysteresis	1
20 02	Biosteam: Oven temp. hyst. red. power	1
20 04	Autosteam: Oven temperature hysteresis	1
20 07	Steam: Oven temperature during injection	97
20 08	Quick steam: Oven temperature hysteresis	1
20 20	Injection Interval	255
20 21	Steam injection time (<100 °C)	255
20 22	Steam injection time (>100 °C)	255
20 23	Combi-steam injection time	255
20 24	Regenerating injection time	255
20 25	Oven temperature compensation value	0

Cool down / Preheat

170 01	Cool-down available	
170 01	SafeCoolDown	
170 01	Preheating available	
170 02	Preheating with algorithm	
170 02	Preheating mode Fast Intelligent	
170 02	Preheat tolerance	25
170 05	Preheat tolerance for regenerating	30
170 06	Min. cool-down temperature	30
510 01	Preheat holding time Press&Go	5
510 01	Preheat tolerance Press&Go	30
170 03	Temperature difference, end	5
170 04	Cool-down fan speed	100
330 08	Cold appliance - temperature limit	60
330 09	Cold appliance – hold time	240
500 01	AutoStart cool-down temperature	50

HumidityPro

400 01	Moisture input On time, level 1 (<100 °C)	5
400 02	Moisture input Off time, level 1 (<100 °C)	240
400 03	Moisture input On time, level 2 (<100 °C)	5
400 04	Moisture input Off time, level 2 (<100 °C)	180
400 05	Moisture input On time, level 3 (<100 °C)	5
400 06	Moisture input Off time, level 3 (<100 °C)	120
400 07	Moisture input On time, level 1 (>100 °C)	5
400 08	Moisture input Off time, level 1 (>100 °C)	180
400 09	Moisture input On time, level 2 (>100 °C)	5
400 10	Moisture input Off time, level 2 (>100 °C)	5
400 11	Moisture input On time, level 3 (>100 °C)	5
400 12	Moisture input Off time, level 3 (>100 °C)	60

Crisp&Tasty

50 01	Dehumidifier valve pressure equalization	2
50 02	CS drainage pump On time	5
50 03	CS drainage pump Off time	15
50 04	Cycle time	60
50 05	level1OnTimeCT	12
50 06	level2OnTimeCT	24
50 07	level3OnTimeCT	36
50 08	level4OnTimeCT	48
50 09	level5OnTimeCT	60
190 06	Running time for CS-chamber drainage pump	1800

BakePro

60 01	level1OnTimeAM	30
60 02	Fan Off time, level 1	60
60 03	level2OnTimeAM	45
60 04	Fan Off time, level 2	75
60 05	level3OnTimeAM	60
60 06	Fan Off time, level 3	90
60 07	level4OnTimeAM	75
60 08	Fan Off time, level 4	105
60 09	level5OnTimeAM	90
60 10	Fan Off time, level 5	120

Cleaning

Cleaning settings				
	 Cleaning instructions and cleaning programs	 ConvoClean+	 Semi-automatic	
	 QuickRinse	 eco	 regular	 express
	 Cleaning level 1	 Cleaning level 2	 Cleaning level 3	 Cleaning level 4
	 Steam disinfection	 Drying		
520 27	Single-measure dispensing 			
520 27	Mains frequency			50 Hz 60 Hz
90 02	Pump fault delay			12

Press&Go

Background preheating active 		
510 01	Background temperature Press&Go	0
510 02	Shelf levels	0
600 00	Elements per line	0
Time until standby mode		900
Progress bar in Press&Go		no
520 31	Product group start	
Loading message without preheating 		

Startup check

510 03	Compensation, new shelf - Start time	´16
510 04	Compensation, new shelf - End time	17
510 05	Compensation, new shelf - Start	5
510 06	Compensation, new shelf - End	2
510 07	Mixed-load compensation start time	16
510 08	Mixed-load compensation end time	17
510 09	Mixed-load compensation start	5
510 10	Mixed-load compensation end	2
510 11	Load compensation at start	3
510 12	Load compensation at end	6
510 13	Auto door compensation	
510 14	Door compensation	200
510 15	Cooking time extended by currently running cooking profile	5
510 16	Restoration phase of a cooking profile	5
510 36	Shelf selection time limiter	0
510 37	Loading time limiter	20
300 03	Max. loading time	90
510 38	Fan stop before end of cooking profile	0
510 39	Restart of fan after end of cooking profile	0
xxx 01	Parallel cooking - blocked cooking steps	20

xxx 02	Parallel cooking - blocked time before end of cooking step	30
xxx 03	Parallel cooking - CTC difference encoder	10
xxx 04	Parallel cooking - time until CTC temperature increase	60
xxx 05	Parallel cooking - max. time for CTC cooking steps	1800

Change Press&Go password

Re-enter Press&Go password

Water

520 25	Water filter cartridge	
520 26	Water filter cartridge opening contact	
100 53	Injection pressure-switch delay	8

Drain box

110 02	Quenching temperature	80
110 03	Quenching temperature error threshold hysteresis	1
110 08	Quenching temperature time tolerance error	30

Food safety

10 01	Max. duration of power outage with resume cooking	600
10 02	Cooking time compensation with resume cooking	100
10 03	Max. possible restart time	30
320 03	HACCP temperature recording interval	10

CTC - Core temperature probe

31 01	CTC	
30 01	CTC1 offset	0
30 02	CTC2 offset	0
30 03	CTC3 offset	0

Fan

130 01	Fan reversing time	120
130 06	Activation temperature for fan pulsed mode	99
130 11	Motor wait time after closing door	0
130 60	Change of direction delay	255

Extraction hood

160 06	Hood switch-off temperature in standby mode	90
160 07	Hood-Start-Preheat	10
160 08	Hood start before end of cooking profile	15
160 09	Max. hood operating time	60
160 10	Hood run-on time at max. speed	10

6.2.5 Cookbook

Cookbook properties

Cookbook name	
Cookbook version	
Compatible appliance sizes	6.10 6.20 10.10 10.20 12.20 20.10 20.20
Compatible appliance types	Convotherm maxx pro
	Convotherm maxx
	Convotherm mini

Manage cookbooks

Import cookbook

Add and use cookbook
Only add cookbook
Add to the current cookbook

Export cookbook

Export current cookbook
Export stored cookbook

6.2.6 Network

Ethernet/LAN

IP address via DHCP	
Hostname	
Enter IP address	
IP address	
Subnet mask	
Default Gateway	
Server name	
Physical address	
Physical address	

WiFi

WiFi	
No SSID set	...
Rest WiFi settings	
MAC address	
IP Address	

KitchenConnect

Register Device		
000 01	kitchenconnect active	
000 02	API appliance interface active	
000 03	External Modbus baud rate	115200
Delete KC certificates		

6.2.7 Logbook

- Displaying the logbook
- HACCPViewer
- Export HACCP data

6.2.8 Service

Tools

DebugPanel
Screenshot
Technical documentation
Installation check list

Service contact

Service contact
Service phone number

System configuration

520 02	Heating method Electric Gas
520 04	Voltage identifier 1N~ 100V 50/60 Hz 1N~ 220-240V 50/60 Hz 1N~ 110-120V 60 Hz 3N~ 400 V 50/60 Hz 3~ 200 V 50/60 Hz 3~ 220-240V 50/60 Hz 3~ 400 V 50/60 Hz 3~ 440 V 60 Hz 3~ 480 V 60 Hz 3~ 208-240V 60 Hz 3~ 440-480V 60 Hz
520 03	Steam generation method Injection system Boiler
520 13	Gas type

520 06	Number of CTCs	4
520 07	Maximum temperature	250
520 17	Frequency converter supplier Schneider Siemens Schneider ATV312	
520 16	Number of frequency converters	0
520 08	Burner supplier	0
520 09	Hood type, mini None Halton CE	
520 10	Number of fans	1
520 12	Final inspection	2
520 28	ConvoClean+	
520 18	Venting position switch	
31 01	CTC	
520 19	Reduced power	
520 21	Smoker	
520 22	Convotherm mini	
520 23	Grease removal	
520 24	Vapour condenser	

520 25	Water filter cartridge 
520 26	Water filter cartridge opening contact 
520 27	Single-measure dispensing 
520 29	Convotherm 4 Bake 
510 30	Time+ active 
520 30	Convotherm maxx 
520 20	Trade-fair mode 
520 38	ConvoSense Demo IP
Export KC log	
xxx xx	DoorLock 
xxx xx	Air System 
xxx xx	Flap Reduce Overpressure 
xxx xx	Reduced Power Available 
xxx xx	Reduced Fan Speed Available 
xxx xx	Mini Mobile 

xxx xx	Smart Light Switch	

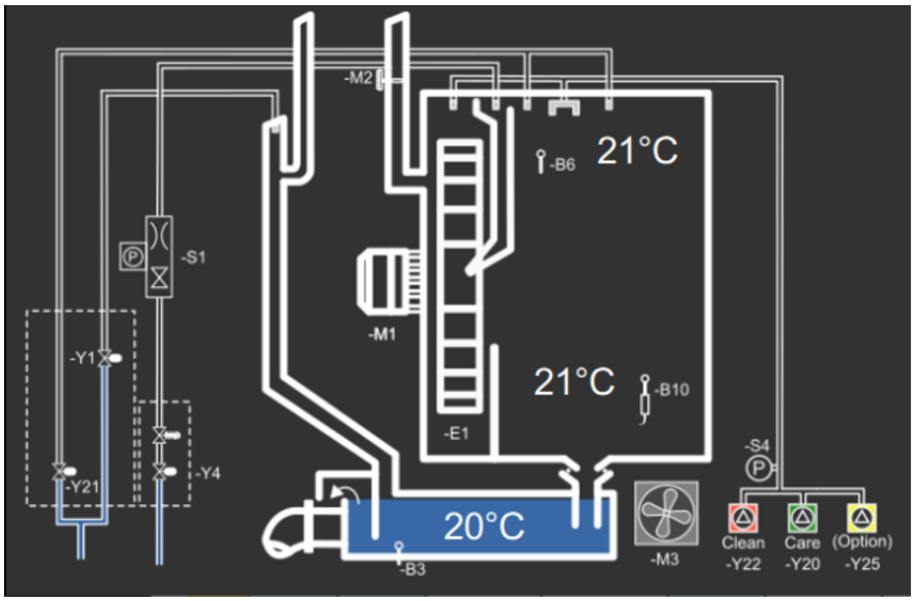
Outputs

Energy optimization off	Damper motor
Water injection	Collector box solenoid valve
Cleaning-agent dispensing pump	Rinse-aid dispensing pump
	Water rinsing
Extra fan	
Cooking-chamber heating element 1	
Fan 1	

Inputs

Energy optimization input	Door contact switch NC
Door venting position open	Water-injection pressure switch
Cleaning agent pressure switch	Water filter cartridge
Damper contact	

Visual diagnostic



Temperature overview

Cooking chamber
CTC internal meas. point 1
CTC internal meas. point 2
CTC internal meas. point 3
CTC internal meas. point 4
Condenser water temperature
SIB temperature

Statistics

Cooking chamber power cycles/duty cycle
Door is open
Cooking-chamber heating element 1
Cooking-chamber heating element 2
Injection intervals/duration

Reset operating parameters

Reset operating parameters to default setting?

6.2.9 Legal information

Third-party supplier licences

6.3 easyDial service menu

The Service mode software was developed for After Sales Service and designed for authorized and trained Field Service Engineers to aid fault diagnosis.

The control electronics of the appliance provide the option of retrieving various internal program parameters and operating states which can be used to identify possible faults.

Consequently, all automatic software functions that normally run in the background are switched off and no error messages are generated when the combi oven is operating in the Service mode.

This means that with the appliance door open and the suction panel removed, it is possible to switch on the oven heater or the fan wheel → risk of injury, risk of burns.

When in Service mode, take care to keep yourself safe and to avoid potentially irreparable damage to the appliance.

If you are not certain what precautions you should take in Service mode, please contact Convotherm After Sales Service.

Opening the easyDial Service menu

1.		Switch on the combi oven.
2.		Open the Service program for Customer Services: Press the "Temperature", "Time" and "Core temperature" buttons simultaneously and hold them for three seconds.
3.		The service number, the associated service value and a brief explanation now appear on the display. The service number is selected on the display, i.e. is displayed as negative text.
4.		The various service numbers can be called up by turning the tilt selector switch.
5.		Use the scroll buttons to switch back and forth between the service number and the service value (only for control and diagnostic values).
6.		If the service value is selected (negative text), it can be adjusted with the tilt selector switch. The modified service value is only applied in the controller once you have jumped back to the service number with the scroll left button.
7.		The subsequent service list provides detailed information about the meaning of the service numbers, the maximum and minimum setting value, the default value (standard setting) and the respective unit.
8.		Press the "Start / Stop" button to exit the customer service program again.

easyDial service menu (read values)

Read values allow read-only access e.g. to temperature sensors / sensors / counter readings / times etc.

No.	Description	Connector	PIN	Units	Comments
r01	CTC 1	X16	2+6	[°C]	Current temperature
r02	CTC 2	X16	3+6	[°C]	Current temperature
r03	CTC 3	X16	4+6	[°C]	Current temperature
r04	CTC 4	X16	5+6	[°C]	Current temperature
r05	Temperature inside the oven	X16	7+8	[°C]	Current temperature
r07	Condenser temperature	X16	11+12	[°C]	Current temperature
r13	Temperature of the electronics (sensor is located on the electronics)			[°C]	Current temperature
r15	ID of electronics				Stored in the IDM
r18	Cleaning-agent pressure	X15	6+7		Pressure switch S2 ConvoClean system 1 = Pressure present
r20	Lower water level	X15	2		0 = Level not reached 1 = Level reached
r23	Door contact	X15	4+5		0 = Door open 1 = Door closed
r29	BM software				
r30	SM software				
r38	Error (last error message)				Call up the last 10 errors with the scroll button
r39	Unit number				
r40	Part number				

easyDial service menu (control values)

The control values allow read/write access to various function parameters. Basic appliance settings can be made here and changes can be made to optimization values.

No.	Description	Values range	Basic setting	Units	Comments
c02	Condenser preheat temperature	50 - 95	88	[°C]	
c03	On-time, LCycle	1 - 20	2	[sec]	
c04	Steaming time with REG	0 - 99	4	[min]	
c06	New.Init (hard reset)	0 / 1	0		01 = All modules (BM, SM) will be re-initialized
c07	Moisture steaming	0 - 99	25	[sec]	Solenoid valve On time Higher is moister
c08	Moisture HLD + REG	0 - 99	12	[sec]	Solenoid valve On time Higher is moister
c09	Moisture steaming Quick	0 - 99	12	[sec]	Solenoid valve On time Higher is moister
c10	Solenoid valve off for all cooking programs	0 - 99	40	[sec]	Solenoid valve On time Higher is dryer
c11	Vapour reducer	0 - 25	0	[sec]	Solenoid valve Off time Switched on continuously, 3 sec.
c12	BitField1	-	-		Enable options: 300 Disable options: 305
c13	BitField2	-	-		Options: CTC = 001 Autom. cleaning = 024 Dummy vers. = 999
c16	Restart, hrs.	0 - 48	0	[Hrs]	
c17	Restart, min.	0 - 59	15	[min]	
c19	PIN	0 - 999	001		

easyDial service menu (diagnostic values)

Diagnostic-testing values are used to locate faults and check correct operation. They can be used to enable/disable the controller switching outputs.

No.	Description	Connec-tor	PIN	Comments
d01	Delete errors			*
d02	Delete keypad locks			*
d03	Delete all programs			*
d04	Operating module self test			*
d05	Test of the steam generator heater	X12	4	
d07	Test of the convection heater	X12	3	
d09	Test of the lamps	X12	2	
d10	Test of the extra fan	X10	1+2	
d12	Test of the condenser SV feed	X12	5	
d16	Test of the PFK EOpt	X13	9+10	Dehumidifier valve
d17	Test of the motor, fast, right	X11	4+5	Does not apply to single phase
d18	Test of the motor, slow, right	X11	4+6	Does not apply to single phase
d19	Test of the motor, fast, left	X11	3+5	Does not apply to single phase
d20	Test of the motor, slow, left	X11	3+6	Does not apply to single phase
d21	Test of the water nozzles	X13	3	
d22	Test of the nozzle rinsing	X13	4	
d23	Test of the cleaning-agent pump	X13	6	
d24	Test of the automatic ignition reset	X14	3	Does not apply to single phase

* = Activate with the right scroll button (displayed with negative text), then select "1" with the tilt selector switch and exit again by pressing the left scroll button, which also saves.

7 Software update

7.1 easyDial software update

7.1.1 Information

The software version on the control module (SM) and the operating module (BM) must always be the same (6.xx), i.e. a software update must always be carried out on both modules with the corresponding hex file.

A software update by reprogramming the control module and the operating module is only possible if the software version number in the appliance is 4.04 for the SM and 4.05 for the BM or higher. Modules with a software version number lower than 4.04/4.05 cannot have a software update; they must be replaced if another software version is required.

There is a sticker on all boards that shows the original software version number (e.g. 5.10, 5.11 ...).

In addition, the software version numbers can be queried in the service program under r29 and r30 for all software versions.

You can obtain a new software version from the Download Centre on the Convotherm homepage as a zip file (e.g. P3 ConvoUp 6.01.zip). This zip file contains the executable installation program for ConvoUpdate called "SETUP.exe". Please follow the installation instructions and run ConvoUpdate under Windows->Start->Programs->Convotherm->SoftwareUpdate VX.xx. Ready!

The update program "ConvoUpdate.exe" loads the hex files and the data for languages, texts and cookbooks to the modules.

After a software update, a New Init (c06) must be carried out.

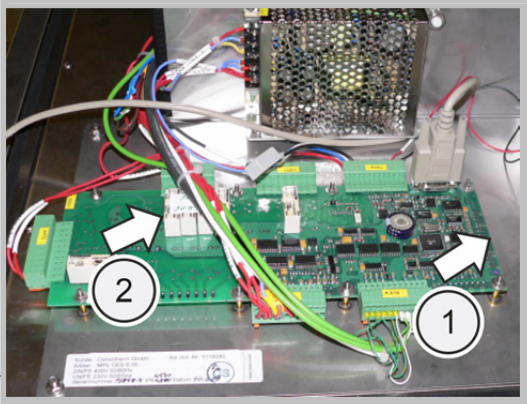
7.1.2 Performing a software update

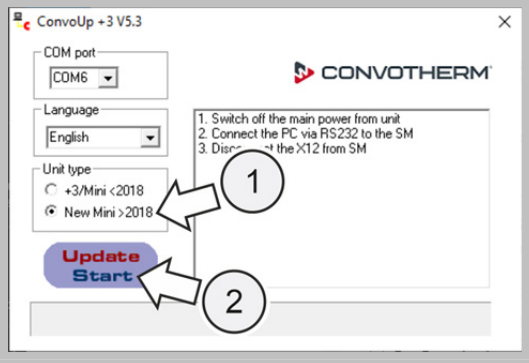
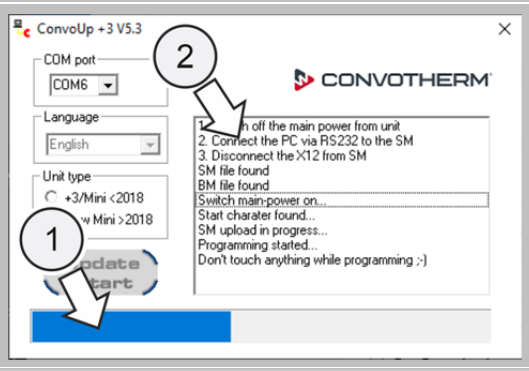
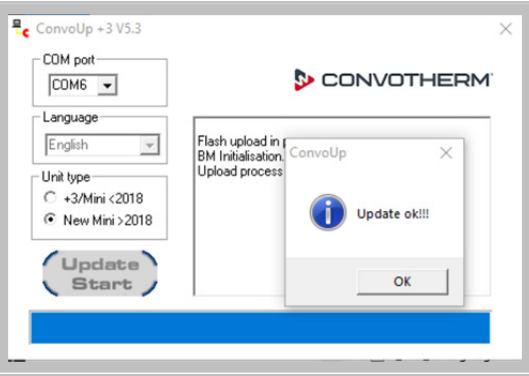
Requirements

Check that the following requirements have been met:

- The appliance has been disconnected from the power supply and protective measures taken to ensure the power cannot be switched on again.
- The top cover has been removed

Performing a software update

1.a		Connect the control module (slot X18 above on the SM) with the special connecting cable (part no.: 5009315) via the RS-232 interface with the PC / laptop (1).
1.b		Disconnect connector X12 from the control module (2).

2.		Start the ConvoUpdate.exe program on your PC / laptop and check for the correct setting of your COM ports (COM1, COM2 ...).
2.a		Select the proper update for your appliance (1).
2.b		Run the update.
3.		Reconnect the supply of power to the electronics. The update starts automatically.
4.		The progress indicator (1) begins to run and status messages about the update appear in the window (2) on the right.
5.		After both the SM and BM have been loaded, the upload of the languages, texts and cookbooks begins. This may take several minutes.
6.		Once the display again shows the date and time, the update has been completed. Once again disconnect the CONVOTHERM from the mains.
7.		Disconnect the PC / laptop from the control module.
8.		Reconnect connector X12 to the control module.
9.		Reconnect the supply of power to the appliance.
10.		Perform a New Init (service point: c06) on the appliance.

Notes:

- The PC / laptop requires a "real" RS-232 interface. If a laptop does not have an RS-232 interface (→ error message "Cannot open COM port"), use a "PCMCIA → RS-232" adapter or a recommended "USB → RS-232" adapter part. no.: 5019200.
- The correct COM port must be selected in the COM port field. (COM1, COM2, ...)
- There must be no access to the COM port by another program at the same time.
- If the error messages "Wrong start character" or "CRC error" appear, repeat the upload. If the error occurs again, a hardware defect must be suspected.
- Instructions on how to proceed can be found in the right-hand window of the update program.

7.2 easyTouch software update

7.2.1 Preparing for a software update

The update program

For the Convotherm maxx Pro / maxx / mini (from 04 2022) models, the current software version is available for download on our homepage:

Materials required

You will need the following materials:

- A USB stick. Ideally with a memory size of 32 GB (the smaller the better); larger sticks can also work.

Preparing the USB stick for a software update

You will need the following materials:

1.	Download the necessary software from the download area on the Convotherm website.
2.	Save the software e.g. "Convotherm mini SW Package Cmini x.x.x CE - USB ready.zip" to the hard disk of your computer (or directly to the USB stick - only recommended with fast USB sticks).
3.	Extract the files to the empty USB stick. Never save the extracted files in a sub-directory.
4.	Safely disconnect the USB stick from the computer to avoid corrupted files or incomplete updates.
5.	The USB stick is now prepared to carry out the software update.

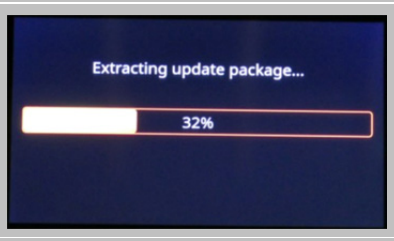
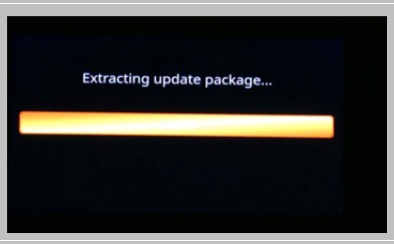
7.2.2 Performing a software update

Requirements

Check that the following requirements have been met:

- The USB stick containing the software update is to hand.
- The combi oven is ready for use.

Performing a software update

1.		Plug in the USB stick and wait for 5 seconds. Switch on the combi oven.
2.		Switch on the combi oven.
3.		Insert the USB stick and wait (for a new unprogrammed spare part, be sure to wait 5 minutes - the BSP update is running!).
4.		Select "easyTouch Update".
5.a		The software update starts.
5.b		The update starts running, indicated by a progress bar.
6a.		Wait until "Success" (1) appears
6.b		Remove the USB stick (2).
6.c		Select "OK" (3).
10.		

8 Servicing

8.1 Servicing tasks

Service intervals

The service intervals specified are intended as a guide. More frequent servicing may be needed depending on the intensity of use and products used.

Checking the warning signs on the appliance

The following table gives you general information on checking the warning signs:

Information	
Service interval	Annually
Reason	Preventing safety risks
Target group	Authorized customer service engineer
Time required	5 minutes
How to do it	Check warning signs

Checking safety devices

The following table gives you general information on checking the safety devices:

Information	
Service interval	Annually
Reason	Preventing safety risks
Target group	Authorized customer service engineer
Time required	5 minutes
How to do it	Checking safety devices

Retrieving information from the logbook

The following table gives you general information on inspecting the logbook:

Information	
Service interval	Annually
Reason	Preventing an appliance failure
Target group	Authorized customer service engineer
Time required	10 minutes
How to do it	Retrieving information from the logbook

Test the water quality

The following table gives you general information on checking the water quality:

Information	
Service interval	Annually
Reason	Preventing appliance failure resulting from limescale deposits or corrosion
Target group	Authorized customer service engineer
Time required	10 minutes
How to do it	Test the water quality

Check seals, hoses and filter units

The following table gives you general information on changing the seals:

Information	
Service interval	Annually
Reason	Preventing an appliance fault
Target group	Authorized customer service engineer
Time required	48 minutes
How to do it	Check seals, hoses and filter units

Checking the electrical installation and electrical components

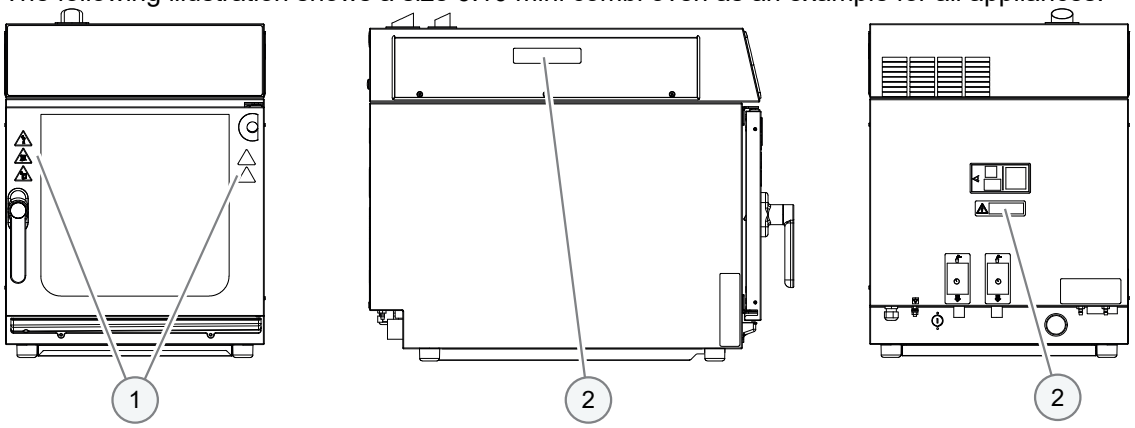
The following table gives you general information on checking electrical components:

Information	
Service interval	Annually
Reason	Preventing an appliance failure
Target group	A qualified electrician from an authorized customer service engineering team
Time required	25 minutes
How to do it	Checking the electrical installation and electrical components

8.2 Check warning signs

Positioning of warning signs

The following illustration shows a size 6.10 mini combi oven as an example for all appliances:



Warning signs on the combi oven case

Warning signs (2) on the combi oven case:

Warning sign	Description
	Warning of electric shock There is a risk of electric shock from live parts if the appliance cover is opened.

Warnings on the appliance door

Warning signs (1) on the appliance door:

Warning sign	Description
	Warning of hot food, hot food containers and hot liquids There is a risk of burns from hot food and hot food containers if food containers tip out of the shelf levels or food slips off food containers that are not held level. This risk is particularly high for shelf levels that lie above the sightline of the user. Spillage of hot liquid foods can result in scalds if the upper shelf levels are loaded with liquids or foods that produce liquid during cooking. Do not use shelf levels that lie above your sightline for liquid foodstuffs or food that will liquefy during cooking.
	**Only for ConvoClean / ConvoClean+ option** Warning of corrosive cleaning agents injected into oven There is a risk of chemical burns or irritation to skin, eyes and respiratory system from contact with sprayed cleaning agents and their vapours if the appliance door is opened during fully automatic cleaning (ConvoClean system).
	Hot steam and vapour hazard warning There is a risk of scalding from hot steam and vapour escaping when the appliance door is opened.
	Tipping or toppling warning for combi oven There is a risk of the combi oven toppling over if moved. Always take great care when moving the combi oven.

Warning sign	Description
	Damage or detachment warning for appliance connections There is a risk of the appliance connections being damaged or detached if the combi oven is moved. Always ensure there is enough length in the supply cables and pipes when moving the combi oven.

Checking and replacing warning signs

Follow the steps below to check and replace the warning signs:

1.		Check whether all the warning signs are present and legible. If not, remove the illegible warning sign. Use an alcohol pad to remove any grease from the adhesive contact area, then wait until the contact area has dried. Stick the warning sign in place.

8.3 Check the safety devices: mini

Meaning

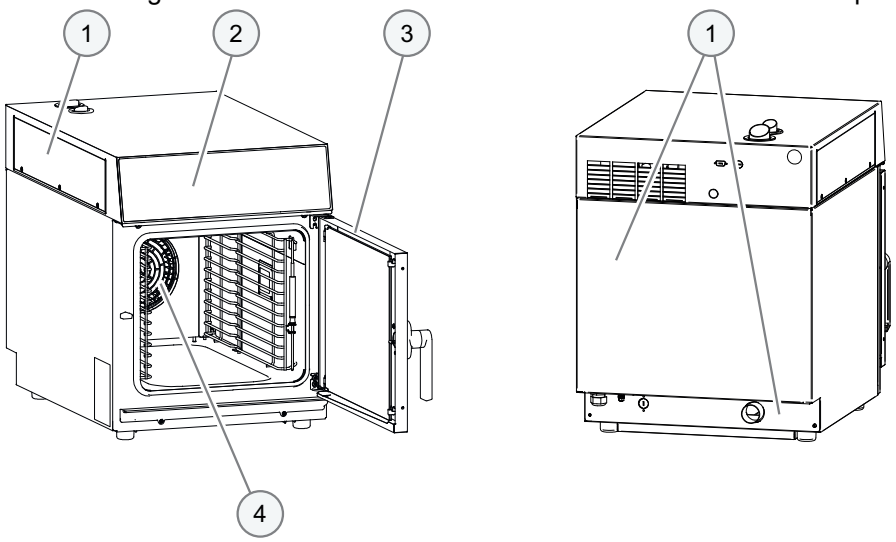
The combi oven has a number of safety devices to protect the user from hazards. It is absolutely essential that all safety devices are fitted, secured correctly and in working order when operating the combi oven.

Materials required

You will need the following materials:
- Suitable tool for undoing the fasteners e.g. wrench

Position and function

The following illustration shows a size 6.10 mini combi oven as an example for all appliances:



Item	Protective device	Function	Check
1	Covers can only be removed using a tool	▪ Prevents live parts from being touched accidentally ▪ Prevents access to the moving fan from the wiring compartment	Check that the covers are in place
2	Operating panel can only be removed using a tool	Prevents live parts from being touched accidentally	Ensure that the operating panel is in place
3	Appliance door	Protects the user and outside environment from hot steam	Check regularly for scratches, cracks, indentations etc. and replace door if any are found
4	Suction panel in cooking chamber; can only be removed using a tool	Prevents access to the moving fan and ensures good heat distribution	See 'Releasing and securing the suction panel' in the user manual

Item	Protective device	Function	Check
5 (no picture)	Safety thermostat for cooking chamber	Switches off the appliance if temperature too high	An error code is output in the event of a fault (Please contact an authorized service company to reset the safety thermostat)
6 (installed by customer)	Disconnector	▪ Installed by the customer close to the appliance; easily visible and accessible, all-pole action, minimum contact separation 3 mm ▪ Used to disconnect the appliance from the power supply during cleaning, repair and servicing work and in a hazardous situation	**Action:** ▪ Trip the disconnector ▪ Make sure that there is no live voltage at the mains supply connecting terminals

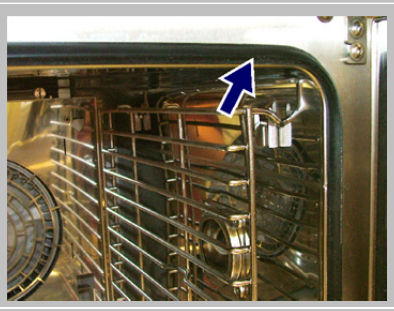
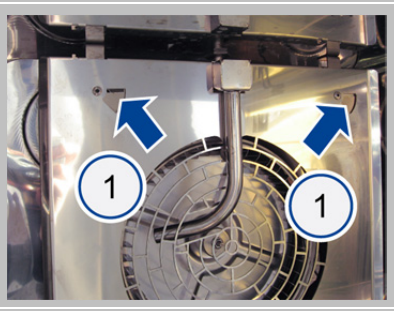
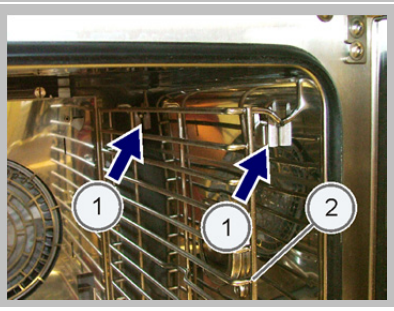
Functions

The following table enumerates all the safety devices on the combi oven and explains their functions:

No.	Safety device	Function
1	Covers can only be removed using a tool	▪ Prevents live parts from being touched accidentally ▪ Prevents access to the moving fan from the wiring compartment
2	Appliance door	Protects the user and outside environment from hot steam
3	Suction panel in cooking chamber; can only be removed using a tool	Prevents access to the moving fan and ensures good heat distribution
4	On-latch position of appliance door	Prevents scalding of user's face and hands from escaping steam
5	Parking brakes on the front wheels of the stacking kit	Prevents unintentional movement of the combi oven
6 (no picture)	Hygienic gasket	Prevents steam escaping from the appliance

Checking safety devices

To check the safety devices, follow the steps below:

1.		Check whether the following defects exist: ▪ Outer covers not fitted on appliance ▪ Screws missing ▪ Screws obviously not tightened sufficiently Fit any missing covers and tighten screws.
2		Check whether the following defects exist: ▪ Dents in the appliance ▪ Scratches, cracks or nicks in the glass window pane Replace the door if it is damaged. Make a repair if dents are affecting reliability.
3		Check whether the hygienic gasket is damaged (for instance has cracks). Replace the hygienic gasket if it is worn or torn.
4		Check whether the catches (1) on the suction panel are securing the panel properly. Replace the suction panel if it is damaged.
5		Check whether the following defects exist: ▪ Retainers (1) are bent ▪ Welds (2) are cracked ▪ Rack is bent Replace the rack if it is damaged. Straighten any bent retainers.

8.4 Check the positioning and connections: mini

Checking the positioning and connections

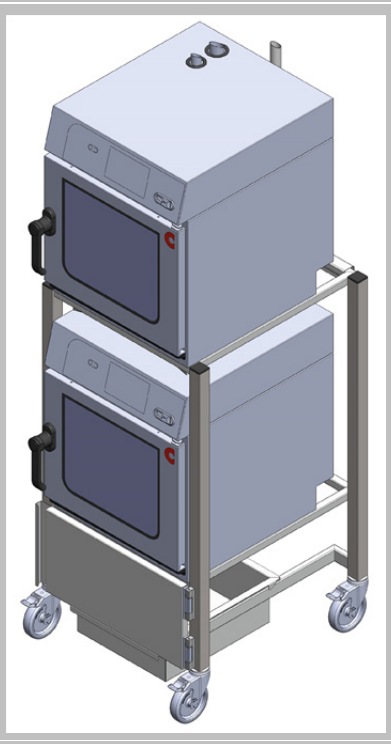
To check the safety devices, follow the steps below:

1

Minimum clearance	[mm]
left	50
right	50
rear	50
top	500
Heat source	500
Deep fat fryers, hot fat or oil	1000 or radius of action of the hand shower

Check that the installation site meets the Requirements for the installation site in the installation manual:
- The subfloor can bear the weight of the appliance (including permitted load)
- Subfloor is horizontal and flat
- Complies with minimum clearance values
- Complies with operating conditions:
  - The ambient temperature lies between +4 °C and +35 °C
  - Not installed in a potentially explosive atmosphere
  - If outdoors, it is protected from rain
  - Not installed directly under fire alarm or sprinkler system
  - Not placed against or on flammable materials

2



Check that the appliance has been installed in accordance with the requirements given in the installation manual under Positioning the appliances in a stacking kit.
- Appliance is installed horizontally (for all horizontal parts)
- Appliance is secured against toppling over
- Components are not covered, adjusted or blocked
  - Air vent on the top of the appliance
  - Ventilation slots on the rear of the appliance
  - Gap on the front of the appliance between the feet
- Wheels on the stacking kit are not corroded or worn

3

Check that the water supply meets the requirements specified under Water supply in the installation manual:
- Check valve (type DCV) included
- Dirt filters fitted
- Suitable water-supply connection points installed
- Required water quality is met (see Checking the water quality)
- Flow pressure 2 - 6 bar (see Test the water quality)

Connection location: Item (16) in Design and function of the combi oven

4		Check that the water drain meets the requirements specified under Water drain in the installation manual: ▪ Safety overflow is unobstructed ▪ A permanent drain connection is provided without a flexible pipe
5		Check the air circulation situation in the installation site (ventilation and extraction) ▪ Extraction provided ▪ Ventilation provided

8.5 Test the water quality: mini

Materials required

You will need the following materials:
- 1 sample container for taking samples
- 1 conductivity meter (part no. 3019007)
- Analysis kit for measuring general hardness and carbonate hardness, including two analysis containers (part no. 3019010)
- Wrench for unscrewing the catches on the suction panel
- Personal protective equipment: Protective gloves

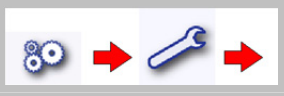
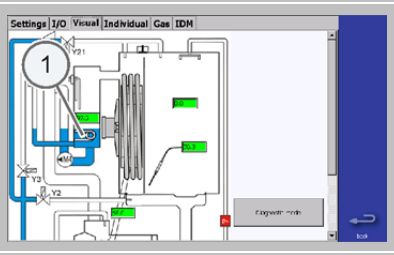
Water quality

The following table shows the values for the water quality:

Water quality		
Water quality for general use		Drinking water quality (install water treatment unit if necessary)
Hardness for injection		
German degrees of hardness (general hardness: GH)	[°dH]	4 - 7
French degrees of hardness	[TH]	7 - 13
English degrees of hardness	[°e]	5 - 9
International	[ppm]	70 - 125
Chemical	[mmol/l]	0.7 - 1.3
Hardness for condenser, cleaning		
German degrees of hardness (general hardness: GH)	[°dH]	4 - 20
French degrees of hardness	[TH]	7 - 35
English degrees of hardness	[°e]	5 - 25
International	[ppm]	70 - 360
Chemical	[mmol/l]	0.7 - 3.6
Properties		
Temperature (T)	[°C]	max. 40
Conductivity	[µS/cm]	min. 20
pH		6.5 - 8.5
Cl^-	[mg/l]	max. 100
SO_4^{2-}	[mg/l]	max. 150
Fe	[mg/l]	max. 0.1

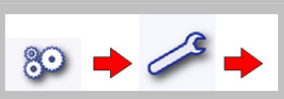
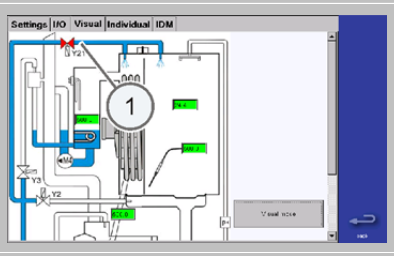
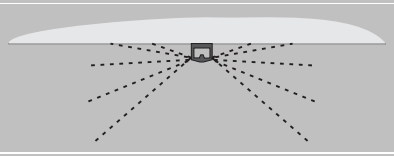
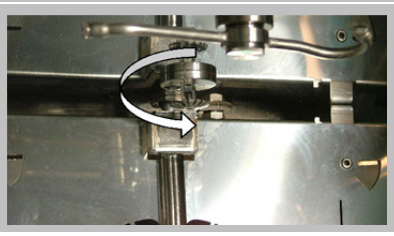
Sampling the soft water

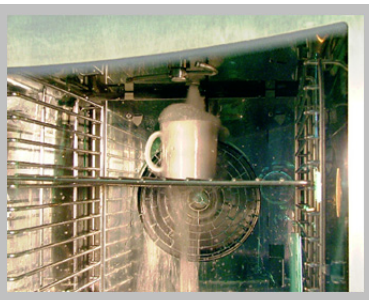
To take a water sample, follow the steps below:

1		Remove the rack and the suction panel.
2		Open the 'Settings' or 'Service agent mode' page and then the 'Service' page. Select the 'Visual' tab. Select 'Diagnostic mode'. At the prompt, enter and confirm the password.
3		Press and hold the actuator (1) for several seconds. **Result:** Water must be injected into the cooking chamber.
4		**Warning:** Please note that operating certain actuators will start the heater or the fan wheel. Make sure that you operate the correct actuator. Rinse the sample container with the sampled water. Fill the sample container.

Sampling cold water

To take a water sample, follow the steps below:

1		Close the appliance door. Open the 'Settings' or 'Service agent mode' page and then the 'Service' page. Select the 'Visual' tab. Select 'Diagnostic mode'. At the prompt, enter and confirm the password.
2		Press and hold the actuator (1) for several seconds. **Result:** Water must be injected into the cooking chamber.
3		Check whether the water is distributed over the entire cooking chamber by the sprinkler nozzle. Make especially sure that the water jet reaches the roof of the appliance. If not, check whether the flow pressure is 2 - 6 bar.
4		Unscrew and remove the sprinkler nozzle. Position the sample container on a tray under the opened water supply.

5		Rinse the sample container with the sampled water. Fill the sample container.

8.6 Check seals, hoses and filter units

Materials required

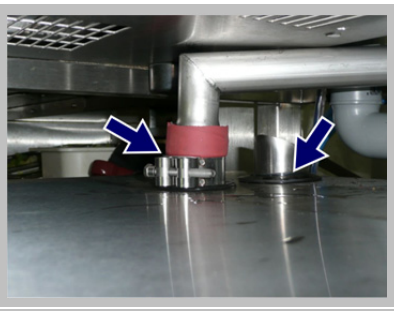
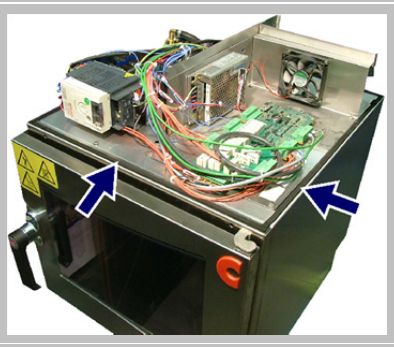
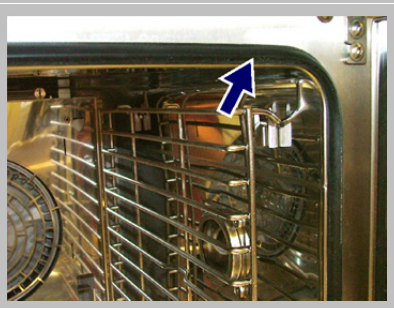
You will need the following materials:

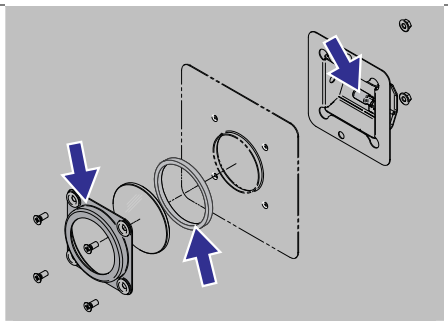
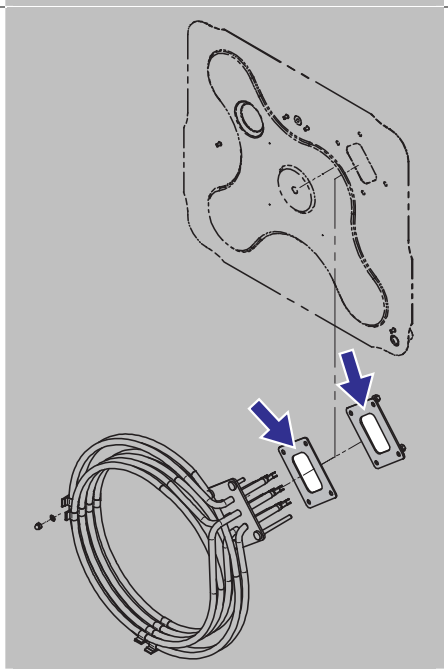
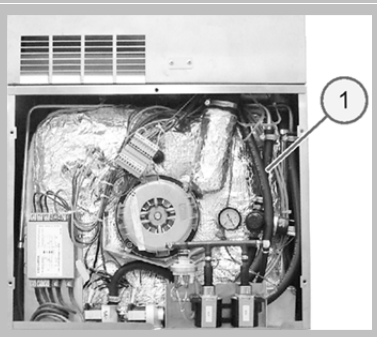
- Wrench
- Seal for top box and cooking chamber (part no. 7014050, by the meter)
- Seal for oven sensor (B6) (part no. 6005260)
- Seal for oven light (part no. 6005013)
- Lamp (part no. 5005045)
- Glass cover (part no. 5015011)
- Seals for heater (part no. 6015025)
- Water hoses (part no. 7002033, by the meter)
- Filter unit for cleaning agent supply (part no. 3007061)
- Hose for cleaning agent, red (part no. 7002002)
- Hose for rinse agent (part no. 7002006)

Parts are only replaced when needed.

Check seals, hoses and filter units

To check the seals, hoses and filter units, follow the steps below:

1		Check the seal on the air vent and ventilation port. Replace the seal if it is damaged.
2		Check whether the seal between the top box and the cooking chamber provides a continuous seal. Replace the seal if it is damaged.
3		Check whether the hygienic gasket is damaged (for instance has cracks). Replace the hygienic gasket if it is damaged.

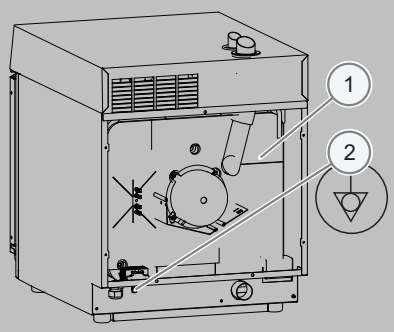
4		Check the oven-light seal, the lamp and the cover. Replace the seal if it is damaged, and replace the lamp or glass cover if faulty.
5		Check the seal for the oven sensor (B6). Tighten the screw fastening.
6		Check the seal for the hot-air heater. Tighten the screw fastening.
7		Check all hoses for wear (1). Items to check include: ▪ Water hoses ▪ Cleaning-agent hoses Replace any hoses that are damaged or leaking.

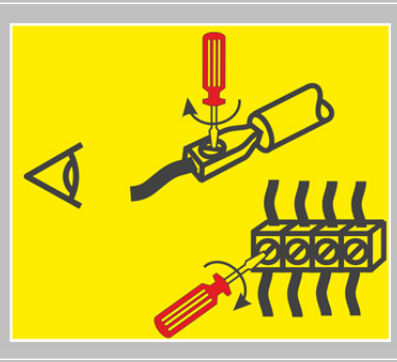
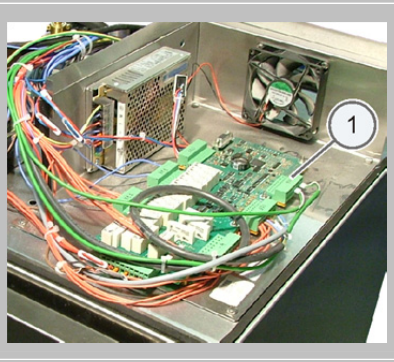
8		Check that the filter units are fitted at the end of the cleaning-agent hoses. Rinse the filter units in the cleaning-agent supply and rinse-agent supply with water.
9		Check that the cleaning-agent supply and rinse-agent supply are connected correctly.

8.7 Checking the electrical installation and electrical components

Checking the electrical installation and electrical components

Follow the steps below to check the electrical installation and the electrical components:

1		Check that the electrical installation meets the requirements specified under Planning the electrical installation in the installation manual:
		▪ Equipment provided by customer is installed and installation complies with electrical installation regulations:
		  ▪ Fusing complies with local and national regulations
		  ▪ Appliance is incorporated in equipotential bonding system
		  ▪ Residual-current device (type B) is fitted in installation in accordance with national regulations
		  ▪ All-pole disconnection device with a minimum contact separation of 3 mm has been installed.
		▪ Power cord has the following properties:
		  ▪ is oil-resistant, sheathed and flexible in accordance with regulations
		  ▪ is undamaged
		  ▪ is fitted with cable strain-relief
		Position:
		▪ (1) Circuit diagram
		▪ (2) Connection point for equipotential bonding

2		Check that all screw connections (1) are tightened firmly. Retighten the connections. Items to check include: ▪ Mains input filter ▪ Contactor wiring ▪ Frequency converter ▪ Power supply ▪ Connecting terminal on hot-air heater ▪ Terminal block
3		Check that all plug-in connections (1) are firmly in place. Plug in the connectors correctly. Items to check include: ▪ Connectors X10 - X18 ▪ Control module ▪ Operating module Remove any dirt or moisture from the circuit boards.
4		Check the grounding contact.
5		Carry out a voltage proof test (high voltage).

8.8 Functional testing

Hot steam / vapour

⚠WARNING

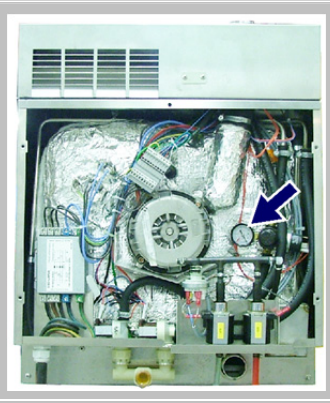
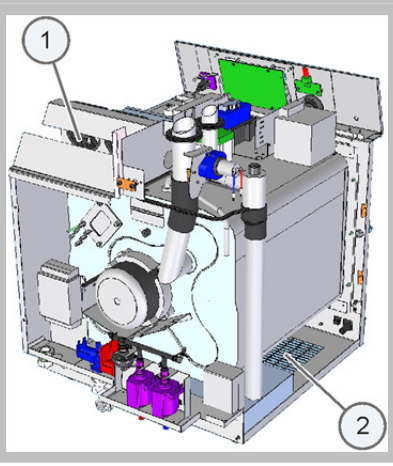
Risk of scalding from hot steam and vapour

Escaping hot steam and vapour can cause scalding to face, hands, feet and legs.

▷ Open the appliance door as specified in the instructions for safe opening. Never put your head inside the cooking chamber.

Testing the "superheated steam" function

To test the function, follow the steps below:

1		Close the appliance door. Select 'Superheated steam' and enter a cooking temperature of 150 °C. Start the cooking program.
2		Check whether the pressure regulator in the steam-generator water supply is set to 120 kPa (1.2 bar). Take a pressure reading from the pressure gage in the water supply.
3		Check whether: ▪ The oven light is on ▪ The fan wheel is running ▪ The temperature inside the oven is rising ▪ The heater switches off at 150 °C ▪ No steam is escaping from the appliance around the door gasket ▪ Steam is being generated (open appliance door carefully) ▪ The water supply and drainage system is water-tight.
4		Carry out a voltage proof test (high voltage).

8.9 Servicing Checklist

Basic information

Enter the basic information below:

Appliance location:
(name, address) _____

Unit number
(7-digit number from the type plate)
Left side of appliance _____

Part number (as given on type plate) _____

Installation

Servicing tasks	OK	not OK	rectified	Recommended action (if necessary!)	Servicing time in minutes (including action)
Check the installation (installation manual)				Correct installation	10

Water quality

Servicing tasks			OK	not OK	rectified	Recommended action (if needed!)	Servicing time in minutes (including action)
Check the quality of the water supply connected:						Replace spent filter cartridge	
	Soft water	**Untreated water**				e.g. BRITA Purity Steam	15
TDS / ppm	_____	_____					
General hardness	_____	_____				Injection system: 4-7° dH / 70-125 ppm	
Carbonate hardness	_____	_____					
Are there heavy deposits in the cooking chamber? (lime, silicate, minerals, salt...)						Check the water filtration, Descaling	5

Door

Servicing tasks	OK	not OK	rectified	Recom-mended action (if necessary!)	Servicing time in minutes (including action)
Door: Check the wear and function of the door handle:				Replace	5
Check the wear of the door catch				Replace	10
Is the door contact switch functioning? (ventilation position)				Replace	5
Door gasket soiling / wear				Clean/replace	5
Interior glass pane				Clean	10
Rubber door buffer between the inner glass and the outer door in place				Replace	3

Check the parts of the cooking chamber

Servicing tasks	OK	not OK	rectified	Recom-mended action (if necessary!)	Servicing time in minutes (including action)
Function of the dehumidifier valve, leak tightness				Clean/replace	15
Door drip tray and outlet opening				Clean/replace	5
Appliance drip tray clean, drain opening not clogged				Clean/replace	10
Racks mounted properly and mounting points in order				Repair	5

Appliance basic cleaning (standard)

Servicing tasks	OK	not OK	rectified	Recom-mended action (if necessary!)	Servicing time in minutes (including action)
Function of the dehumidifier valve, leak tightness				Clean/ Replace	15
Door drip tray and outlet				Clean/ Replace	5
Appliance drip tray clean, drain opening not clogged				Clean/ Replace	10

Water flow test during injection

Servicing tasks	OK	not OK	rectified	Recom-mended action (if necessary!)	Servicing time in minutes (including action)
Solenoid valve for injection and pressure control with nozzle				Adjust the water pressure control and the water flow	5
Water injection flow rate _____ml/min				Check and adjust ml/min	15
No clogging of the sieve before the solenoid valve, of the nozzle or the piping				Clean/ Descale	5
Check water hoses and connections for wear and leakage				Replace	10

Cleaning system (CCS)

Servicing tasks	OK	not OK	rectified	Recom-mended action (if necessary!)	Servicing time in minutes (including action)
Cleaning agent is original, Caution: Third-party manufacturers can be the cause of corrosion and rust or can damage the glass and seal. Brand of the agent used: _____				Replace	2
Check the functionality of the two dispensing pumps for ConvoClean and ConvoCare and the associated pressure switch.				Replace	2
Check the pumps and hose for leak tightness.				Repair	15

Electrical parts

Servicing tasks	OK	not OK	rectified	Recom-mended action (if necessary!)	Servicing time in minutes (including action)
Visual inspection of all cables, wiring, connections. Connectors in position, no traces of moisture present					5
Check CTC probe of cooking chamber for leak tightness				Replace seals	10
Retighten all sensors (in cooking chamber, condenser, bypass, steam generator) & check seal				Replace seals	15
Test cooking chamber lamps, leak-tightness inspection				Replace	10
Clean suction grille of cooling fan				Clean	5
Test of all outputs and equipment by means of service diagnostics (valves, heating contactor, drives)					10

Comments

9 Error messages

9.1 General error messages

General information

Description	Cause / Corrective action
No oven light but the appliance is otherwise working properly	▪ Light bulb for oven lighting is faulty ▪ Micro fuse faulty
Oven light remains on although the appliance switch is off	Electronics temperature is still too hot and requires additional cooling by the extra fan
The appliance does not operate after starting a program	▪ Door is not closed ▪ Magnet on the door is not in the correct position ▪ Door contact switch is faulty ▪ Appliance is set to demo version
Water is running out of the condenser overflow under the floor of the appliance	▪ Insufficient slope of the waste-water piping ▪ Too many tight curves in the waste-water piping are slowing the draining of the water → replace 90° elbows with several 45° elbows to relieve the resistance ▪ Customer funnel waste trap is blocked ▪ Customer drainpipe is blocked
Water standing in cooking chamber	▪ Dirt filter in cooking chamber drain is dirty and clogged ▪ Condenser is clogged (if dirt filter is not fitted)
Water dripping out of the front area of the appliance floor on table-top units	▪ Door gasket worn ▪ Door gasket is not seated properly, seal to appliance is inadequate ▪ Drain is clogged ▪ Sealing material between inner and outer case is worn or missing
Water dripping out of the door area	▪ Interior glass pane not seated or seated incorrectly (retaining brackets interfere with the seal) ▪ Core temperature probe cable crushed between interior glass pane and door gasket ▪ Door gaskets worn

Water spills out of the appliance drip tray / emergency overflow when closing the door	▪ Drain piping has a certain positive pressure
	  ▪ Instead of 90° elbows it is better to use several 45° elbows
	  ▪ Ensure a sufficient minimum cross-section of the pipes
	  ▪ Ensure a sufficient slope of the pipes
	  ▪ Ensure a ventilation path is incorporated in the piping (if possible: install open funnel drain with P-trap or antisiphon pipe)
	▪ → to relieve the drain system, the "automatic valve flap opening when door opens" option can be enabled in the service parameters.

Too dry in programs using steam	▪ Moisture removal has been enabled ▪ Injection nozzle / injection line is clogged (limescale) ▪ Dehumidifier valve not closed mechanically
Too damp in programs using steam	▪ Solenoid valves not closing properly ▪ Injection time was increased inadmissibly ▪ Injection nozzle was widened inadmissibly

Temperature does not rise in convection mode	▪ Solenoid valves not closing properly ▪ Injection time was increased inadmissibly ▪ Injection nozzle was widened inadmissibly

Temperature does not rise in convection mode	▪ Safety thermostat B7 has triggered
	▪ Heater contactors are not switching on
	  ▪ Contact problem with heater connecting terminals
	  ▪ Faulty heater contactor
	▪ Hot-air heater faulty

Uneven browning	User mistake: ▪ Cooking chamber was not preheated sufficiently ▪ Food not distributed evenly in the center of the cooking chamber ▪ Too little air space present between the baking trays ▪ Too much food loaded with too little space for air movement Technical cause: ▪ Suction panel not fitted correctly ▪ Heat output of hot-air heaters too low

Condenser

Description	Cause / Corrective action

Constant intake of water to condenser	▪ Solenoid valve Y1 not closing:
	  ▪ Solenoid valve dirty
	  ▪ Faulty solenoid valve
	  ▪ Water pressure too low
	▪ Defective B3 temperature sensor (incorrect temperature value)
	▪ Appliance connected to hot water → cold water
	▪ Solenoid valve Y1 swapped with Y4

Little or no injection of cold water in condenser	▪ Check polarity of B3 sensor connection (green/white)
	▪ Water supply is shut off
	▪ Condenser quenching nozzle blocked
	▪ Dirt filter in hose fitting is dirty
	▪ Intake filter in solenoid valve is dirty → clean
	▪ Solenoid valve Y1 not opening
	  ▪ Solenoid coil faulty
	  ▪ Faulty solenoid valve
	▪ Defective B3 temperature sensor

Motor

Description	Cause / Corrective action
Motor will not run after starting a program	▪ Door contact switch loose or defective ▪ Door magnet loose or defective → Check the function of the door contact switch in the service program ▪ Appliance is set to demo version
Motor does not run at times after program start / Motor runs at a very slow speed	Appliance uses fan cycling once the pre-set oven temperature of, for example, 70 °C has been reached. It reduces the fan speed to reduce the consumption of energy and to treat the food gently.
The motor no longer starts after a repair	▪ Control signal missing → control wires from SM -X14 not connected to frequency converter ▪ The control module may be lacking the necessary relays to the motor control (relays near -X14) ▪ A new IDM may be lacking the parameter configuration for this frequency converter ▪ A replaced variable frequency drive might not have the parameter configuration for this appliance (the display must show "rdy" in standby). Frequency converter parameters must be configured for this appliance by Convotherm

Electronics

Description	Cause / Corrective action
Displayed oven temperature does not equal the actual temperature inside the oven	▪ Short circuit of B6 sensor lead ▪ Check polarity of B6 sensor (green/white) ▪ Oven sensor connection has been swapped with that of a different sensor ▪ B6 sensor dirty
Displayed temperature values incorrect: the higher the temperature at the sensor, the lower the temperature value displayed	Wrong polarity of a temperature sensor → check the connecting leads of the sensor concerned (green and white wires must not be swapped)

Convection heater safety thermostat (B7)

Description	Cause / Corrective action
Safety thermostat B7 has triggered	▪ Temperature inside oven was over 300 °C ▪ Cooking chamber fan was faulty/off ▪ Heater contactor contacts have welded together → Replace contactor ▪ Check polarity of B6 sensor connection (green/white) ▪ Mechanical shock when moving appliance has triggered safety thermostat.
Safety thermostat B7 triggers already at too low a temperature.	B7 is unreliable and defective → replace

User Interface - easyTouch

Description	Cause / Corrective action
The easyTouch can be operated normally but the appliance does not work	▪ The appliance has an error in the background that was acknowledged but is still pending → check the logbook ▪ The appliance might be set to demo version ▪ Reinstall the software
Screen is "frozen" due to rapid, repeated pressing of buttons	▪ Restart the software → by pressing the On / Off button. ▪ Switch off for about 10 sec.
The USB stick is not being recognized	▪ USB stick is formated incorrectly →, FAT or FAT32 are valid ▪ The files on the stick might be corrupted → the software must be downloaded again ▪ Copy the software onto an otherwise blank stick ▪ Store in the root directory of the stick ▪ External USB port not working → in this case, insert stick directly on easyTouch inside
easyTouch screen remains black	Check the power supply of -J2 (-X44,-X17)
easyTouch boots repeatedly / reboots repeatedly	▪ 12 V power supply unit breaks down under load ▪ Short circuit or ground fault of individual low-voltage actuators while starting (cooling fan, cooking chamber lamp, dehumidifier valve) of the 12 V circuit

Cleaning

Description	Cause / Corrective action
Low water message during or at the end of cleaning	▪ The water connection provides too little stable flow pressure ▪ Water pressure breaks down on demand by the combi oven or other kitchen appliances and no longer achieves the minimum pressure
Cleaning agent / rinse aid pump does not start or does not respond to control signals	▪ Door contact switch must be closed to ensure the function of the pumps, otherwise no enable ▪ Dispensing pump defective ▪ Control relay defective ▪ Micro fuse -F10 faulty
Cooking chamber is not clean after fully automatic cleaning	▪ Armature nozzle is clogged and does not rotate ▪ Appliance was switched off for a longer period during the cleaning ▪ Adapt the cleaning level to the degree of soiling ▪ Cleaning agent / rinse aid is not Convotherm original ▪ Cleaning agent concentration is too high/aggressive ▪ Cleaning agent is not approved for high temperatures ▪ Water rinsing could not be injected
Cooking chamber is discoloured / has strong chemical odour after fully automatic cleaning	▪ Adapt the cleaning level to the degree of soiling ▪ Cleaning agent / rinse aid is not Convotherm original ▪ Cleaning agent concentration is too high/aggressive ▪ Cleaning agent is not approved for high temperatures ▪ Water rinsing could not be injected

There is still foam in the cooking chamber	▪ Adapt the cleaning level to the degree of soiling → choose a lower cleaning level for the next cycle ▪ Cleaning agent / rinse aid is not Convotherm original: ▪ Cleaning agent / rinse aid concentration is too high/aggressive ▪ Water rinsing could not be injected
The cooking chamber has a white film / streaks on the stainless steel after the end of the cleaning cycle	▪ The rinse aid concentration is incorrect → see the ConvoCare instructions ▪ The water softening / water filtration is used up and must be replaced / regenerated ▪ The water hardness is too high for the automatic cleaning system ▪ The lime content in the water is too high (carbonate hardness of the water) ▪ The mineral content is generally too high (conductivity of the water) → Close the water filtration before the untreated water connection if not yet done ▪ The water rinsing does not work

9.2 Error codes

Error messages - range E00.x to E02.x

Error	Description	Cause / Corrective action
E00.0	Previous fault no longer exists	--
E01.2	Not enough water for water injection for steam generation (water pressure is less than 0.5 bar 8 seconds after valve activation).	▪ Water supply is shut off ▪ Soft water connection not connected to the water supply ▪ Dirt-trap filter in solenoid valve or in the water connection is dirty ▪ Solenoid valve (-Y4) faulty ▪ Test the water quality ▪ Contact problems between pressure switch and connector (X15) on control module (SM) ▪ Faulty pressure switch S1 ▪ T-piece for water injection pressure switch is clogged / dirty → clean out with needle ▪ Incorrect pressure switch (value too high) ▪ Pressure regulator not adjusted correctly ▪ Supply flow pressure too low, water pressure falls off too sharply when used
E02	Temperature in wiring compartment too high	▪ Air intake blocked / dusty fan grille ▪ Minimum distance from heat sources not met ▪ Cooling fan is dirty, obstructed or faulty ▪ Cooling fan not fitted correctly → check blow direction ▪ Appliance too close to wall so blocking ventilation slits ▪ Polarity, + and - terminals, of 12 V extra fan are swapped ▪ High temperature in wiring compartment: greater than 70 °C for longer than 60 sec.

Error messages - E03.x range (variable frequency drive)

Error	Description	Cause / Corrective action
E03.0	Fan fault (Motor, frequency converter)	Winding temperature too high in fan motor -> Thermal cutout has triggered ▪ Fan motor is faulty ▪ Contact problem in the connecting wires to the motor ▪ Motor shaft jammed ▪ Thermal cutout in the motor winding is faulty or disconnected Frequency converter (note error message on the display) ▪ Undervoltage ▪ overvoltage ▪ Motor protection function Condenser faulty (only possible on appliances with only one fan speed)
nOF	Information, not a fault	--
OCF	Overcurrent	▪ Motor shaft is tight, difficult to move ▪ Motor overcurrent
CrF1	Internal error message	Fault in the load-relay controller or the load resistor is damaged → Switch the variable frequency drive off and back on again → check all plug-in connections → Replace the variable frequency drive → if error still appears, contact Convotherm
OHF	Over-temperature	Variable frequency drive too hot because ambient temperature too high → Check motor load → Check ventilation of variable frequency drive → Check ambient temperature → remove adhesive label from variable frequency drive → Let the variable frequency drive cool down before switching it back on
OLF	Overload	Triggered by motor current being too high → check motor load
ObF	Excessive braking: severe deceleration or excessive load being driven; over-voltage during slow-down	▪ Increase the slow-down time Configurable parameter 103 03 (default setting 8) ▪ Check that the mains voltage does not exceed the maximum permitted value (20% above the maximum mains voltage during operation)
OSF	Mains over-voltage	▪ Faulty power supply ▪ Switch-on voltage: +10% allowed ▪ Standby: +20% allowed
OPF1	One motor phase lost	▪ Connector -X3M5 between motor and variable frequency drive not plugged in properly ▪ PIN in plug is bent and not making contact → check connections between variable frequency drive and motor ▪ Faulty motor winding

Error	Description	Cause / Corrective action
PHF	Mains phase lost	▪ Faulty supply to the variable frequency drive → check the power supply to the variable frequency drive ▪ Blown fuse → check fuse
USF	Undervoltage	▪ Mains voltage too low → check mains voltage ▪ temporary drop in voltage → check the power supply to the frequency converter ▪ Faulty neutral conductor ▪ Phase L1 to variable frequency drive is missing, contact terminal charred → check fuse and cabling
SCF 1	Motor short-circuit	▪ Defect in connecting cable from variable frequency drive to motor ▪ Faulty motor winding ▪ Short-circuit at output of variable frequency drive
SOF	Motor rotating too fast	Incorrect parameters in the variable frequency drive → check motor
InF3	Internal communications breakdown in the variable frequency drive	Contact Convotherm
InF4	Internal error message	▪ Check all plug-in connections ▪ If error still appears, contact Convotherm
SCF3	Ground fault	▪ Defect in connecting cable from variable frequency drive to motor ▪ Faulty motor winding ▪ Ground fault at output of frequency converter → check power supply cable from frequency converter to motor ▪ Large leakage current to ground at output of frequency converter
OPF2	Three motor phases lost	▪ Motor not connected ▪ Motor current too low or zero
SLF2 SLF3 InF9 InFb EJF SCF4 SCF5	Internal error message	▪ Check all plug-in connections to the variable frequency drive ▪ Switch variable frequency drive off and back on again ▪ If error still appears, contact Convotherm
InFE	Internal error message	▪ Switch variable frequency drive off and back on again ▪ Replacing the frequency converter
CFI 2	Invalid configuration made on the variable frequency drive (internal error message)	Use new variable frequency drive with parameters configured by Convotherm
ULF	Motor underload error (internal error message)	▪ Switch variable frequency drive off and back on again ▪ Replacing the frequency converter
OLC	Overload error, overcurrent	Motor current greater than the overload threshold → check the mechanical system (wear, stiffness, lubrication, obstructions, ...)

Error	Description	Cause / Corrective action
LFF 1	Internal error message	Contact Convotherm

Error messages - range E16 to E29.x

Error	Description	Cause / Corrective action
E16	Dehumidifier valve Functional error	**Rotation of motor valve flap** ▪ Sluggish -> remove dirt ▪ Micro switch not adjusted correctly -> Adjust limit switch ▪ Micro switch faulty -> Replace dehumidifier valve **Motor rotates, but valve flap does not** Motor shaft is slipping, valve flap obstructed -> Coupling defective, replace **Motor and valve flap do not rotate** ▪ Cable defects (interrupted 12V/ contact problems on SM -X13) ▪ Motor jammed ▪ Motor defective -> Replace motor with valve flap
E21.1	Oven sensor error, open-circuit (-3B6-thermocouple discontinuity)	▪ Sensor lead disconnected (X16 connector on the control module) ▪ Oven sensor (-3B6) disconnected (faulty)
E21.2	Oven sensor fault, ground fault	▪ It is not possible to identify the definite source of a short circuit to frame. The short to ground may even be in another thermocouple sensor ▪ Thermocouple (-3B6) or another sensor is touching the appliance case ▪ Thermocouple (-3B6) or another sensor is faulty
E21.3	Oven sensor error; excess temperature: above 320 °C for longer than 2 sec.	▪ Heater protection fault ▪ Fan wheel not in motion ▪ Faulty oven sensor
E22.1.1	Error from core temperature probe (first measurement point CTP1), broken sensor, open-circuit	▪ Sensor lead disconnected (X16 connector on control module) ▪ CTP probe disconnected ▪ Control module dirty around plug-in contacts for temperature sensor
E22.1.2	Fault in core temperature sensor (first measurement point CTS1), ground fault	▪ Break in the probe tip ▪ Break in the cable ▪ Core temperature probe needle deformed/bent ▪ Control module dirty around plug-in contacts for temperature sensor
E22.1.3	Error from core temperature probe (first measurement point CTP1), excess temperature: above 320 °C for longer than 2 sec	▪ Control module dirty around plug-in contacts for temperature sensor ▪ Thermocouple faulty (indicating a temperature that is too high, even though actual temperature is not too high)

Error	Description	Cause / Corrective action
E22.2.1	Error from core temperature probe (second measurement point CTP2), broken sensor, open-circuit (discontinuity in thermocouple)	▪ Sensor lead disconnected (X16 connector on control module) CTP probe disconnected ▪ Control module dirty around plug-in contacts for temperature sensor
E22.2.2	Fault in core temperature probe (second measurement point CTP2), ground fault	▪ Break in the probe tip ▪ Break in the cable ▪ Core temperature probe needle deformed/bent ▪ Control module dirty around plug-in contacts for temperature sensor
E22.2.3	Error from core temperature probe (first measurement point CTP1), excess temperature: above 320 °C for longer than 2 sec.	▪ Control module dirty around plug-in contacts for temperature sensor ▪ Thermocouple faulty (indicating a temperature that is too high, even though actual temperature is not too high)
E22.3.1	Error from core temperature probe (third measurement point CTP3), broken sensor, open-circuit	▪ Sensor lead disconnected (X16 connector on control module) ▪ CTP probe disconnected ▪ Control module dirty around plug-in contacts for temperature sensor
E22.3.2	Fault in core temperature sensor (third measurement point CTS3), ground fault	▪ Break in the probe tip ▪ Break in the cable ▪ Core temperature probe needle deformed/bent ▪ Control module dirty around plug-in contacts for temperature sensor
E22.3.3	Error from core temperature probe (third measurement point CTP3), excess temperature: above 320 °C for longer than 2 sec	▪ Control module dirty around plug-in contacts for temperature sensor ▪ Thermocouple faulty (indicating a temperature that is too high, even though actual temperature is not too high)
E22.4.1	Error from core temperature probe (fourth measurement point CTP4), broken sensor, open-circuit	▪ Sensor lead disconnected (X16 connector on control module) ▪ CTP probe disconnected ▪ Control module dirty around plug-in contacts for temperature sensor
E22.4.2	Fault in core temperature probe (fourth measurement point CTP4), ground fault	▪ Break in the probe tip ▪ Break in the cable ▪ Core temperature probe needle deformed/bent ▪ Control module dirty around plug-in contacts for temperature sensor
E22.4.3	Error from core temperature probe (fourth measurement point CTP4), excess temperature: above 320 °C for longer than 2 sec.	▪ Control module dirty around plug-in contacts for temperature sensor ▪ Thermocouple faulty (indicating a temperature that is too high, even though actual temperature is not too high)

Error	Description	Cause / Corrective action
E25.1	Error of condenser probe (-5B3) disconnected, open-circuit	▪ Sensor lead disconnected (X16 connector on control module) ▪ Condenser probe (-5B3) disconnected (faulty) ▪ Control module dirty around plug-in contacts for condenser sensor
E25.2	Condenser sensor error (sensor -5B3 in the condenser), ground fault	▪ It is not possible to identify the definite source of a short circuit to frame. The short to ground may even be in another thermocouple sensor ▪ Condenser sensor (-5B3) or another sensor is touching the appliance case ▪ Condenser sensor (-5B3) or another sensor is faulty
E25.3	Condenser sensor (-5B3), over-temperature (if temperature in condenser box is measured at >110°C for longer than 30 sec.)	▪ Condenser sensor faulty ▪ Faulty lead ▪ Condenser sensor misreading ▪ Water supply in condenser box too hot: ▪ Water tap closed ▪ Appliance connected to hot water ▪ Faulty condenser solenoid valve ▪ Intake filter in solenoid valve is dirty ▪ Quenching nozzle over the condenser steam vent pipe clogged
E29.0	One thermocouple has a ground fault	One thermocouple sensor has contact to the appliance case and is causing a ground fault ▪ Connection between sensor lead and sensor case ▪ Check individual sensors for a ground fault (beginning with the core temperature probe)

Error messages - range E58 to E91.x: mini

Error	Description	Cause / Corrective action
E58.0	Pressure for ConvoClean cleaning agent was not reached	▪ No cleaning agent → fill canister with cleaning agent ▪ Suction tube is drawing in air (hose clips not fitted properly) ▪ Suction tube is kinked or pinched ▪ Pressure switch not reporting any pressure within 15 seconds of switching on the pump ▪ Faulty pressure switch ▪ Cleaning-agent dispensing pump cannot generate any pressure
E59.0	Pressure for ConvoCare cleaning agent was not reached	▪ No rinse aid → fill canister with rinse aid ▪ Suction tube is drawing in air (hose clips not fitted properly) ▪ Suction tube is kinked or pinched ▪ Pressure switch not reporting any pressure within 15 seconds of switching on the pump ▪ Faulty pressure switch ▪ Rinse-aid dispensing pump cannot generate any pressure

Error	Description	Cause / Corrective action
E62.0	Cleaning agent pressure switch is not working correctly. (Logic of the pressure-switch readout)	▪ Cleaning agent pressure switch is faulty because it is already closed before the pump starts running and is able to build up pressure ▪ Incorrect pressure switch value → replace pressure switch if necessary ▪ Cleaning-agent nozzle clogged ▪ Pressure switch control line is short circuited / bridged → In Service mode, check whether the pressure switch switches and then releases again when the cleaning-agent / rinse-aid dispensing pumps start running.
E63.0	Water injection pressure switch is not working correctly.	▪ Nozzle is clogged (limescale) ▪ Injection line is clogged / blocked by limescale ▪ Faulty pressure switch because it is already closed before the solenoid valve opens ▪ Wrong pressure switch → replace pressure switch if necessary ▪ Lead short-circuited / bypassed → In Service mode, check whether the pressure switch switches when the injection solenoid valve is activated.
E73.4	Flat battery	▪ Battery for real-time clock on UI board is flat ▪ Poor battery contact.
E80.1	Identity error, appliance does not recognize the type of heater	▪ The system cannot identify whether the appliance is gas or electric. Therefore all outputs are switched off. ▪ IDM faulty
E81.0	Program memory error; invalid cooking algorithm	▪ Working parameters of a multi-step program do not lie within MAX and MIN values ▪ After saving a cooking idea in the cookbook, the temperature display is changed from °C to °Fahrenheit ▪ Perform a software update with a current version
E89.1.0	IDM faulty (Invalid data in IDM)	▪ IDM checksum faulty → unplug the appliance from the mains supply for 10 sec. and then power up again ▪ Perform a software update with a current version ▪ IDM faulty → procure new IDM
E89.1.1 to E89.1.12	Internal error message	▪ → unplug the appliance from the mains supply for 10 sec. and then power up again ▪ Final inspection mode set unintentionally → set to 2 ▪ → if error still appears, contact Convotherm
E89.2	Invalid configuration for combi oven in the control module	Illogical configuration between control module RAM and IDM → Replace IDM
E89.3	Invalid parameter values or write error for adjustable parameter values in the IDM	Checksum for data in the control module RAM and IDM incorrect → Replace IDM
E89.4.0	Invalid MIN/MAX ranges (discrepancy between control module RAM and IDM)	→ unplug the appliance from the mains supply for 10 seconds and then power up again Incorrect MIN/MAX values → replace IDM

Error	Description	Cause / Corrective action
E89.4.1	Internal error message	→ unplug the appliance from the mains supply for 10 seconds and then power up again → if error still appears, contact Convotherm
E89.5	Setup parameters not logical either in control module RAM or in IDM; Invalid configuration or write error in control module RAM	No valid parameters → replace IDM
E89.6 to E89.12	Internal error	Contact Convotherm
E91.x	SD-card error	Contact Convotherm

Error messages - range E92.x to E200.x

Error	Description	Cause / Corrective action
E92.1 to E92.7	SD-card error	SD card contact problems → remove SD card and plug it in once again → unplug the appliance from the mains supply for 10 seconds and then power up again → if error still appears, contact Convotherm
E93.0 to E97.1	Internal error message	→ unplug the appliance from the mains supply for 10 seconds and then power up again → if error still appears, contact Convotherm
E99.0	Communication interface to the SM could not be opened	Initialization error at the communications interface → plug in the RJ 45 communication cable once again → remove any possible moisture from the circuit board/socket and eliminate the cause → unplug the appliance from the mains supply for 10 seconds and then power up again → update software to latest software release
E99.1	SD card error in easyTouch appliances	SD card contact problems → remove SD card and plug it in once again → unplug the appliance from the mains supply for 10 seconds and then power up again → if error still appears, contact Convotherm
E99.10	Incompatible software	▪ Update software to latest software release ▪ Several attempts may be needed (if necessary, contact Convotherm)
E254.0	Communications error SM - UI	Perform a software update with the most recent software from the homepage

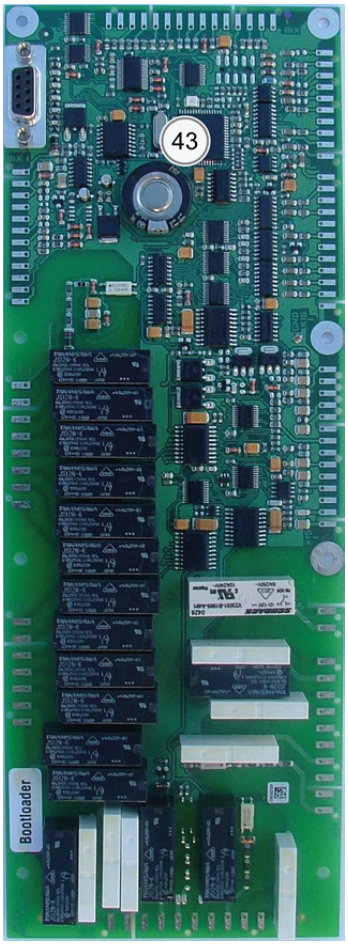
9.3 Troubleshooting using the LEDs

Troubleshooting options using the LEDs on the controllers

The following photographs show the different modules:

Power supply module

Control module



Identifying faults on the controllers

The following table summarizes the indicators used for identifying faults on the controllers:

No.	Color	Function	LED	Reason
Power supply module				
45	Green	Diagnostic	Illumi-nated	When output voltage is correct
Control module				
43	Green	Diagnostic	Flashing	When control module is working (data being exchanged between opera-ting module and control module)
			OFF	Supply module is missing or no program

10 Replacing appliance parts to rectify problems

10.1 Removing and installing parts of the appliance case

10.1.1 Removing and fitting the top box

Component

C009 Top box

Tools required

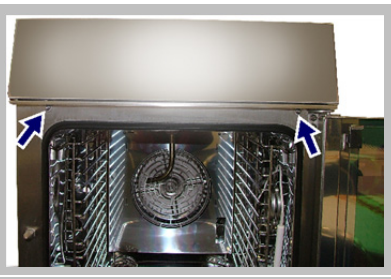
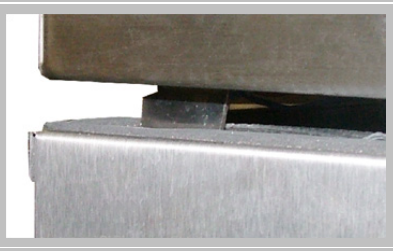
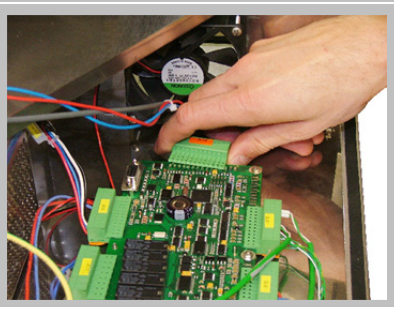
Size 4 Allen key

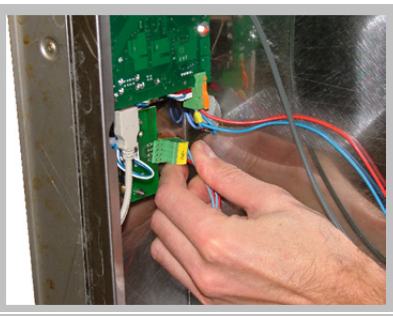
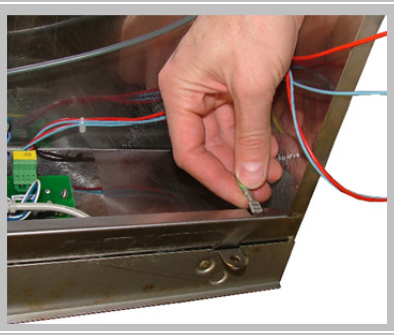
Requirements

Check that the following requirements have been met:

- The appliance has been disconnected from the power supply and protective measures taken to ensure the power cannot be switched on again.

Removing the top box

1.		Open the appliance door and use the size 4 Allen key to undo the two screws on the front section below the operating panel.
2.		Lift the top box up slightly at the front and pull the top box forwards a little. Now undo the fastening on the intermediate top panel.
3.		Lift the top box up. **Caution:** Make sure that you do not damage any cables.
4.		Unplug connector X18 from the control module (on the intermediate top panel).

5.		Unplug connector X0 from the circuit board for the main 'ON/OFF' switch (top box).
6.		Disconnect the protective earth conductor from the terminal in the top box.
7.		Lift off the top box and place the top box on its side so it cannot tip over.

Fitting the top box

1.	Fit the PE conductor.
2.	Plug connector X18 into the control module.
3.	Plug connector X0 into the main switch.
4.	Fasten the top box into the intermediate top panel.
5.	Fold the top box back down again carefully and take note of the two connecting pieces which must be guided through the cover cutouts. Use the size 4 Allen key to tighten the two screws to fix the top box firmly back in place. **Caution:** Make sure that you do not trap any cables.
6.	Check that the Start page appears after switching on the appliance at the main power switch.

10.1.2 Removing and fitting the rear panel

Component

A002 Rear panel

Tools required

Phillips screwdriver

Requirements

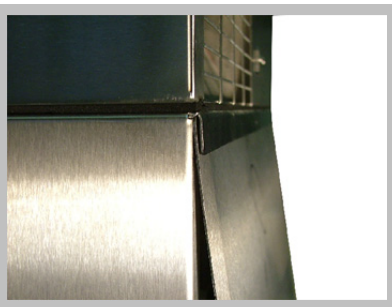
Check that the following requirements have been met:

- The appliance has been disconnected from the power supply and protective measures taken to ensure the power cannot be switched on again.
- The top box has been removed.

Removing the rear panel

1. Undo the cross-head screws on the rear panel of the appliance.
2. First hinge the bottom of the rear panel slightly away from the appliance and then pull the rear panel downwards.
3. Remove the rear panel.

Fitting the rear panel



1. Slide the top of the rear panel under the lip of the intermediate top panel.
2. Screw the rear panel back on tightly using the 6 cross-head screws.

10.1.3 Removing and fitting the connecting bracket

Component

A007 Connecting bracket

Tools required

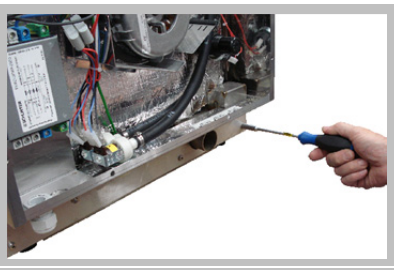
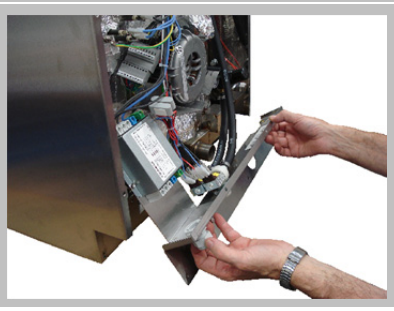
- Phillips screwdriver
- 8 mm socket wrench

Requirements

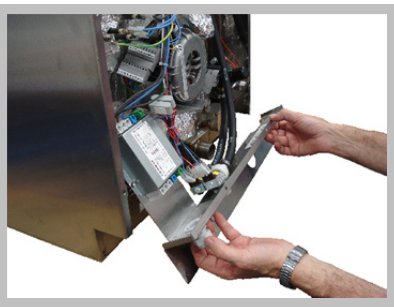
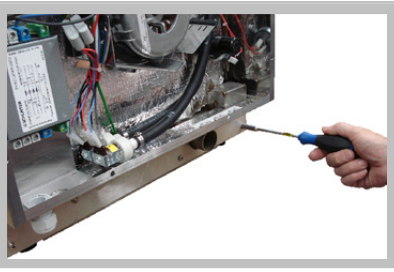
Check that the following requirements have been met:

- The appliance has been disconnected from the power supply and protective measures taken to ensure the power cannot be switched on again.
- The top box has been removed.
- The rear panel has been removed.

Removing the connecting bracket

1.		Unscrew the connecting bracket.
2.		Tilt the connecting bracket away backwards.

Fitting the connecting bracket

1.		Unscrew the connecting bracket.
2.		Feed the connecting bracket in between them.
3.		Screw the connecting bracket back on firmly.

10.1.4 Removing and fitting the outer casing

Component

A001 Outer casing

Tools required

Phillips screwdriver

Requirements

Check that the following requirements have been met:
- The appliance has been disconnected from the power supply and protective measures taken to ensure the power cannot be switched on again.
- The top box has been removed.
- The rear panel has been removed.
- The connecting bracket has been removed.

Removing the outer casing

Step	Action
1	Remove all the components that are connected to the appliance body.
2	Undo the screws on the outer casing.
3	To do this, lift the outer casing on the left and right side at the back.
4	Pull the casing backwards until there is a gap between front section and outer casing.
5	Flex the outer casing slightly apart and pull it off from the rear.

Fitting the outer casing

Step	Action
1	Slide the outer casing back in. Make sure that you insert the outer casing fully so there is no gap between casing and front section.
2	Follow the remaining steps in the reverse order to finish fitting the outer casing.

10.2 Removing and fitting components in the cooking chamber

10.2.1 Removing and fitting the racks

Components

A011 Left rack
A012 Right rack

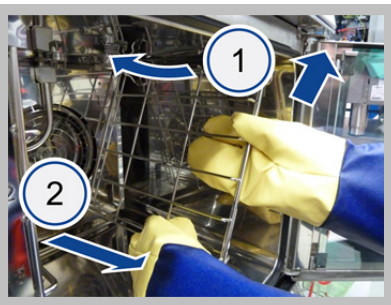
Tools required

None

Requirements

Check that the following requirements have been met:
- The appliance has been disconnected from the power supply and protective measures taken to ensure the power cannot be switched on again.
- The appliance has cooled down.

Removing the racks

1.		Swing the rack gently into the cooking chamber and slide it upwards (1).
2.		Un-hook the rack (2). **Caution:** Take care not to bend the rails, otherwise shelf grills, baking trays and containers will no longer be held securely.

Fitting the racks

Follow the exact opposite sequence in order to fit the racks.

10.2.2 Removing and fitting the suction panel

Component

A010 Suction panel

Tools required

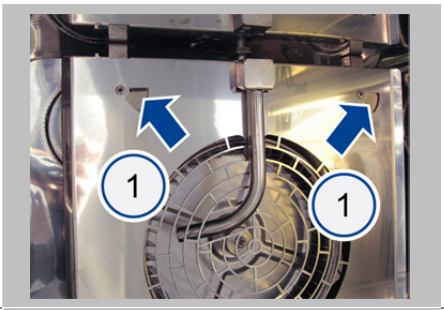
Screwdriver

Requirements

Check that the following requirements have been met:

- The appliance has been disconnected from the power supply and protective measures taken to ensure the power cannot be switched on again.
- The slide racks have been removed.

Removing the suction panel

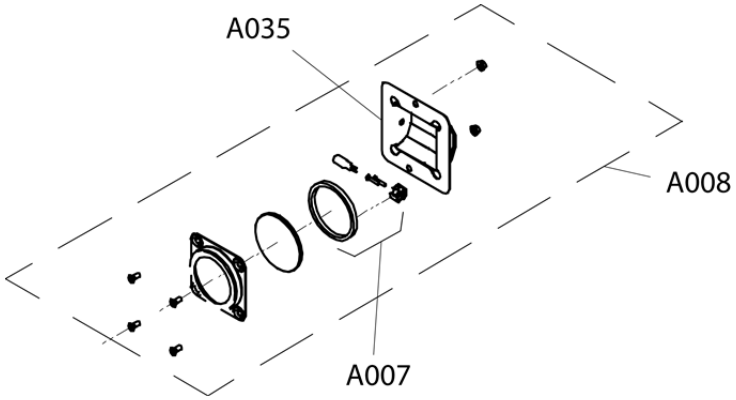
1.		Use a tool (e.g. a screwdriver) to release the left (1) and right (1) fasteners.
2.		Push the suction panel upwards and remove it (2).

Install the extraction panel

- To fit the suction panel, follow the steps in the reverse order.
- Note that the suction panel must engage in the pins on the floor of the appliance.

10.2.3 Removing and fitting the oven light

Construction of the cooking chamber light



Components

A008 oven light
A007 halogen lamp
A035 reflector housing

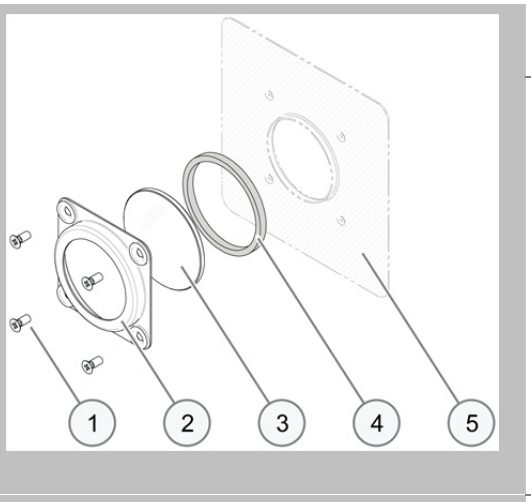
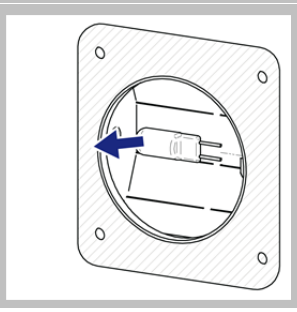
Tools required

- Phillips screwdriver
- Wire cutters
- Wire stripper
- Crimping tool

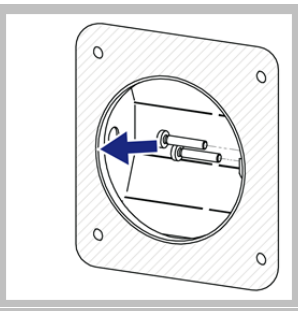
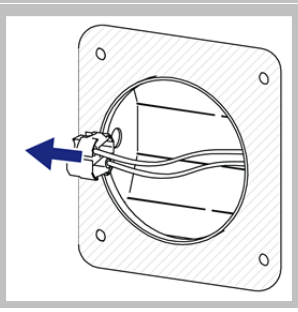
Requirements

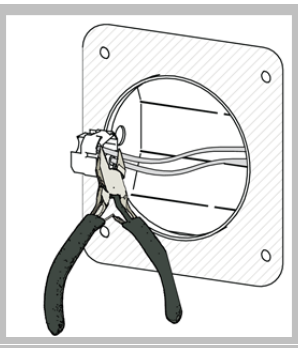
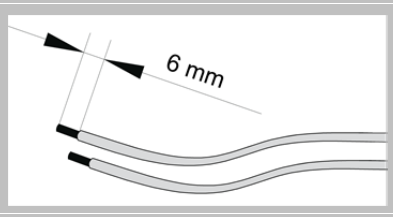
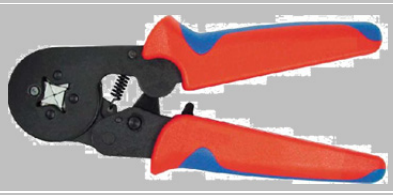
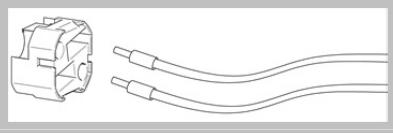
Check that the following requirements have been met:
- The appliance has been disconnected from the power supply and protective measures taken to ensure the power cannot be switched on again.
- The slide racks have been removed.

Removing the oven light

1.		Unscrew and remove the countersunk screws (1).
2.		Remove the trim (2), the glass panel (3) and the seal (4) from the cooking chamber wall (5).
3.		Reach through the hole in the cooking chamber wall into the reflector housing and pull the halogen bulb out. **Caution:** If you wish to re-use the halogen bulb, do not touch the glass bulb of the halogen lamp with your fingers. Use a paper towel.

Changing the lampholder of the oven light

1.		Unscrew and remove both rounded-head screws.
2.		Pull the lampholder carefully out of the reflector housing by no more than 10 cm.

3.		Cut off both leads as close as possible to the back of the lampholder. Dispose of the lampholder.
4.		Strip about 6 mm of insulation from the ends of the two wires.
5.		Thread a ferrule over the end of each wire.
6.		Crimp the ferrules firmly using a crimping tool.
7.		Plug the two leads into the contacts of the new lampholder as far as they will go. The ferrules must not be visible. **Please note:** Once inserted, the lead ends cannot be pulled out of the lampholder again (barbed catch)
8.		Feed the leads with the connected lampholder back into the reflector housing.
9.		Fix the lampholder in place using the rounded-head screws removed earlier.
10.		Insert the halogen bulb in the lampholder. **Caution:** Do not touch the glass bulb of the halogen lamp with your fingers. Use a paper towel.
11.		Put the seal, glass panel and trim back in place and fix them all in place using the four countersunk screws.

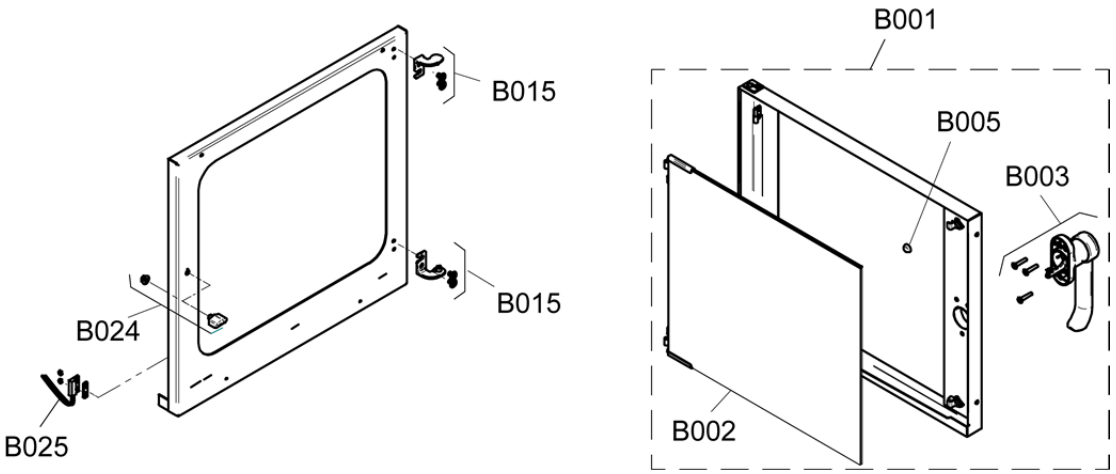
Fitting the oven light

1.	Plug the new halogen bulb into the lampholder. **Caution:** Do not touch the glass bulb of the halogen lamp with your bare fingers. Use a paper towel for insertion.
2.	Put the seal, glass panel and trim back in place and fix them all in place using the four countersunk screws. First fix the components using the four screws, align the glass pane with the seal with the centre and then tighten the screws diagonally.

10.3 Replacing parts of the appliance door

10.3.1 Construction of the appliance door

Construction of the appliance door



Components of the appliance door

Item	Name	Function	CID
1	Appliance door	For right door stop	B001
2	Interior door		B002
3	Door catch	Door catch with 3 Allen screws, for right-hinged door	B003
4	Door buffer		B005
5	Hinge	Outer door hinge for right-hinged door	B015
6	Door catch	Safety catch, two-stage	B024
7	Door contact switch		B025

10.3.2 Removing and fitting the interior door

Component

B002 Interior door

Tools required

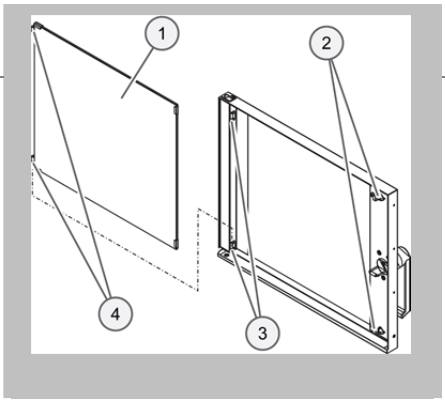
None

Requirements

Check that the following requirements have been met:

- The appliance has been disconnected from the power supply and protective measures taken to ensure the power cannot be switched on again.

Removing the interior door



1. Open the retaining catches (2) of the interior door (1) and hinge the interior door open.
2. Lift the interior door upwards out of the pins (3) of the hinge (4).

Fitting the interior door

1. Feed the interior door onto the pins of the hinge at the top and bottom of the door, and lower the interior door.
2. Hinge the interior door closed and close the retaining catches.

10.3.3 Removing and fitting the exterior door

Component

B001 Exterior door

Tools required

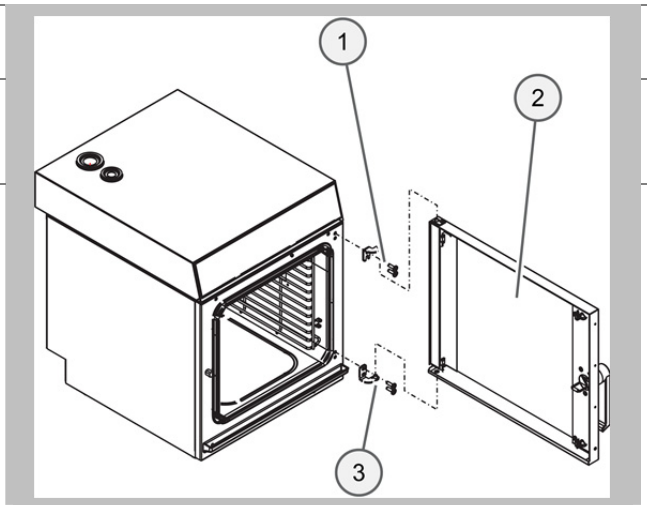
Size 4 Allen key

Requirements

Check that the following requirements have been met:

- The appliance has been disconnected from the power supply and protective measures taken to ensure the power cannot be switched on again.
- The interior door has been removed.

Removing the exterior door

1.		Unscrew and remove the top screw from the top hinge (1).
2.		Unscrew the bottom screw on the upper hinge, holding the exterior door (2) firmly as you do so.
3.		With the exterior door in the 90° position, lift it upwards and out of the bottom hinge (3).

Fitting the exterior door

1.	Insert the upper hinge into the appliance door.
2.	Place the exterior door on the lower hinge and bring the exterior door into the 90° position.
3.	Tighten both the screws on the top hinge.
4.	Fix the screws with threadlocker e.g. Loctite.

10.3.4 Removing and fitting the door catch

Component

B003 Door catch

Tools required

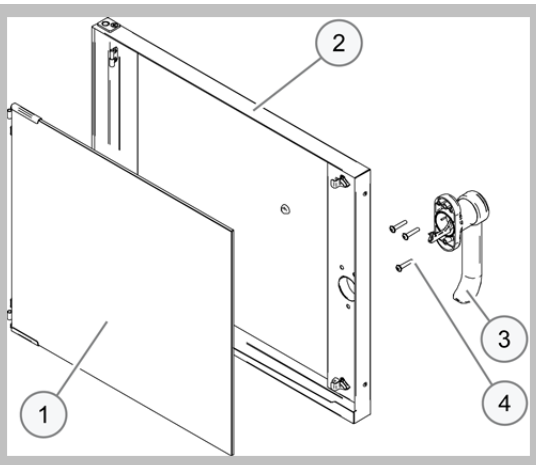
Size 3 Allen key

Requirements

Check that the following requirements have been met:

- The appliance has been disconnected from the power supply and protective measures taken to ensure the power cannot be switched on again.

Removing the door catch

1.		Open the retaining catches of the interior door (1) and hinge the interior door open.
2.		Remove the door catch (3). To do this, unscrew from the inside the 3 Allen screws (4) from the exterior door (2) using the size 3 Allen key.
3.		Remove the door catch.

Fitting the door catch

Follow the exact opposite sequence in order to fit the door catch.

10.3.5 Removing and fitting the door catch block

Component

B024 door catch block

Tools required

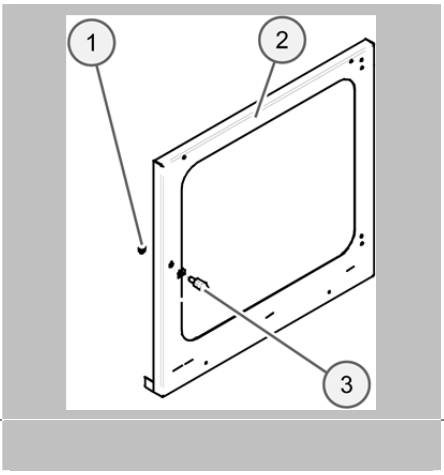
13 mm box wrench

Requirements

Check that the following requirements have been met:

- The appliance has been disconnected from the power supply and protective measures taken to ensure the power cannot be switched on again.
- The top box has been removed.
- The rear panel has been removed.
- The connecting bracket has been removed.
- The outer casing has been shifted backwards or removed.

Removing the door catch block

1.		Remove the door catch block (3) from the front section (2). To do this, unscrew the counter nut and M8 nut (1) on the door catch block using the size 13 box wrench.
2.		Remove the door catch block

Fitting the door catch

1. Screw the door catch block back on tightly with the M8 nut and counter it with the additional M8 nut. When securing, always take note of the correct position of the door catch block.

Caution:

The openings of the door catch blocks must face downwards and the antitwist protection must face upwards.

10.3.6 Removing and fitting the door contact switch

Component

B025 door contact switch

Tools required

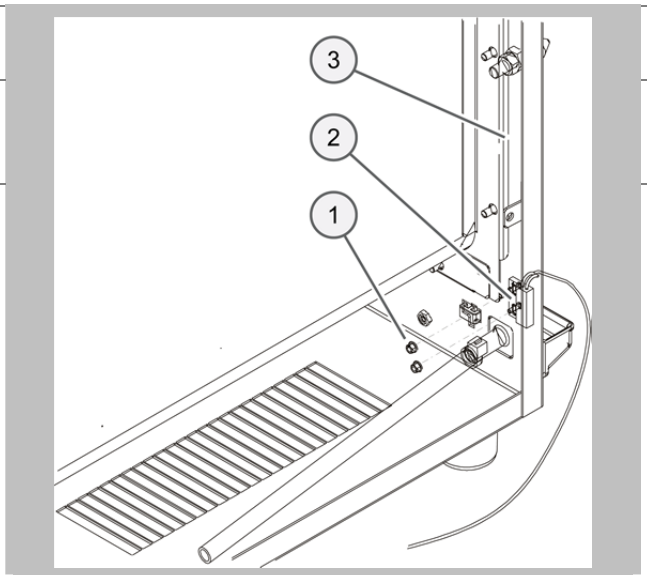
5.5 mm socket wrench

Requirements

Check that the following requirements have been met:

- The appliance has been disconnected from the power supply and protective measures taken to ensure the power cannot be switched on again.
- The top box has been removed.
- The rear panel has been removed.
- The connecting bracket has been removed.
- The outer casing has been shifted backwards or removed.
- The inside face of the front section is accessible.

Removing the door contact switch

1.		Pull the cable from the door contact switch (2) forward slightly.
2.		Open the connection terminals of the door contact switch and pull the wires out.
3.		Remove both M4 nuts (1) from the door contact switch and take the door contact switch off the front section (3).

Fitting the door contact switch

1.	Clamp the stranded wires into the connection terminals.
2.	Fasten the door contact switch back onto the inside face of the front section using the two M4 nuts.
3.	Fix the nuts with threadlocker e.g. Loctite.

10.4 Replacing parts of the control electronics

10.4.1 Construction of the control electronics

Controller construction

Components of the controller

Item	Name	Function	CID
1	Control module (CM)	Controller 5010	C001
2	Fixing accessories	Spacer sleeve	C004
3	Data cable	Data cable	C005
4	Power supply module (PSM)	Power supply	C006
5	Operating module (OM)	Controls	C007
6	Top box		C009
7	USB sliding-cover	Locking slider	C013
8	Main switch		C015
9	Power supply cable	12 V, for operating module	C017
10	Loudspeaker	For	C018
11	SD card	Memory card for operating module	C019
12	Connecting cable	Connecting cable	C026
13	LonWorks gateway		C027
14	LonWorks filter board		C028
15	LonWorks contactor		C029
16	Extra fan		A018

10.4.2 Replacing the operating module

Component

C007 operating module

Tools required

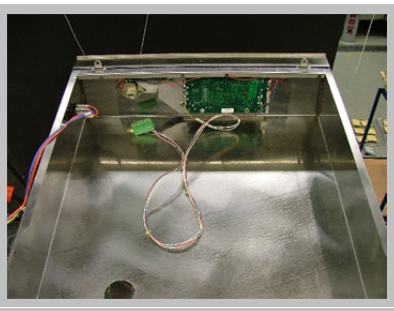
5.5 mm socket wrench

Requirements

Check that the following requirements have been met:

- The appliance has been disconnected from the power supply and protective measures taken to ensure the power cannot be switched on again.
- The top box has been removed.

Removing the operating module

1.		Unplug connectors X4, X1, X9, X13 and X21 and the equipotential bonding connection from the operating module.
2		Unscrew the four M5 lock nuts of the mounting plate using the socket wrench size 5.5. **Caution:** Take care not to damage the thread of the fixing bolts in the process.
3.		Disconnect the cable from the loudspeaker and the main power switch.
4.		Pull the operating module plus the mounting plate backwards off the fixing bolts, keeping the module and plate straight so that they come off each bolt evenly. Do not lose the spacer sleeves in the process. **Caution:** Take care not to damage the loudspeaker or the main power switch when you pull off the mounting plate.

Fitting the operating module

1.	Slide the mounting plate plus the operating module evenly onto the fixing bolts, keeping the module and plate straight as you do so. **Caution:** Take care not to twist the module or damage the thread of the bolts in the process.
2.	Screw on and then tighten the 4 lock nuts with the socket wrench size 5.5.
3.	Plug the X4 connector into the correct position (check + and - polarity!). Then plug connectors X1 and X9 followed by X13 and X21 back onto the operating module.
4.	Fit the top box back onto the appliance.

10.4.3 Replacing the control module

Component

C001 Control module

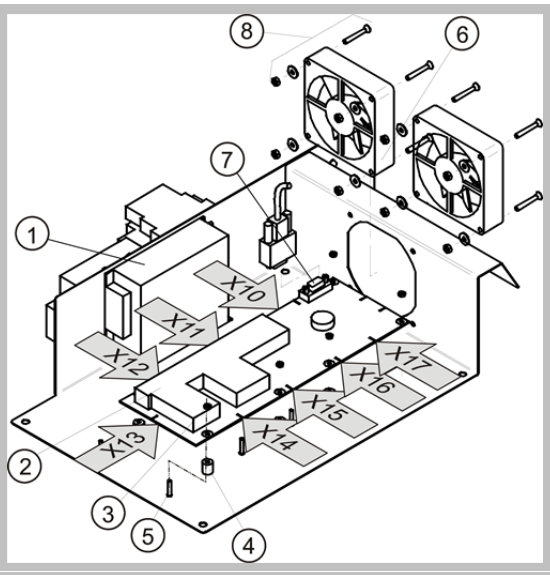
Tools required

5.5 mm socket wrench

Requirements

Check that the following requirements have been met:
- The appliance has been disconnected from the power supply and protective measures taken to ensure the power cannot be switched on again.
- The top box has been removed.

Removing the control module

1.		First remove the spoiler plate from the circuit board, which is screwed in place with four nuts directly after the cooling fans. Unplug the connectors X10 to X18 (those fitted) from the control module. Release the connectors from the circuit board by pressing the retaining catches.
2.		Undo the 4 nuts and 4 spacer pins. Carefully lift the control module off the fixing bolts. Do not lose the spacer sleeves (4) under the control module in the process.

Fitting the control module

1.	Line up the control module correctly on the fixing bolts. **Caution:** Make sure that all the spacer sleeves are in place and take care not to twist the control module as you fit it.
2.	Firmly screw the 4 nuts and 4 spacer pins for the spoiler plate onto the control module.
3.	Plug the connectors X10 to X18 that are present back in.
4.	Mount the spoiler plate on the 4 spacer pins and tighten these with the 4 nuts.
5.	Fit the top box back onto the appliance.

10.4.4 Replacing the supply module

Component

C006 Power supply module

Tools required

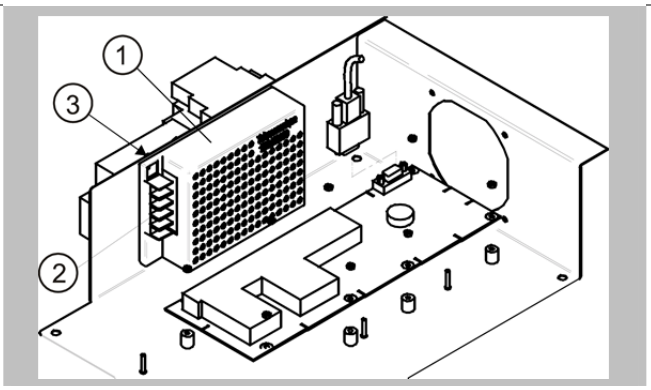
Phillips screwdriver 2

Requirements

Check that the following requirements have been met:

- The appliance has been disconnected from the power supply and protective measures taken to ensure the power cannot be switched on again.
- The top box has been removed.

Removing the power supply module

1.		Disconnect all of the cable leads on the supply module using a Phillips screwdriver (L1, N, PE, +, -). Remove the fixing screws and remove the supply module.

Fitting the power supply module

1.	Fit the supply module to the mounting plate using the appropriate screws
2.	Clamp the cables to the terminals of the power supply module as directed in the attached instructions (L1, N, PE, +, -).
3.	Fit the top box back onto the appliance.

10.4.5 Testing the control electronics after replacement

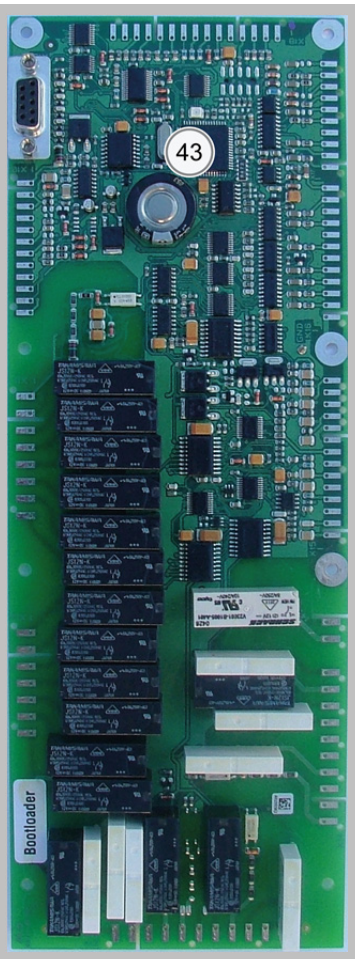
Requirements

Check that the following requirements have been met:
- The control electronics are visible
- The power supply module is visible
- The appliance is plugged into the power supply.

Testing the operating module

1.		Check that the Start page appears after switching on the appliance at the main power switch. **Result:** The operating module and the display are working properly.

Testing the control module

1.		After fitting the control module, check that the green LED (43) on the front of the **control module** is blinking. **Result:** The control module is working properly.

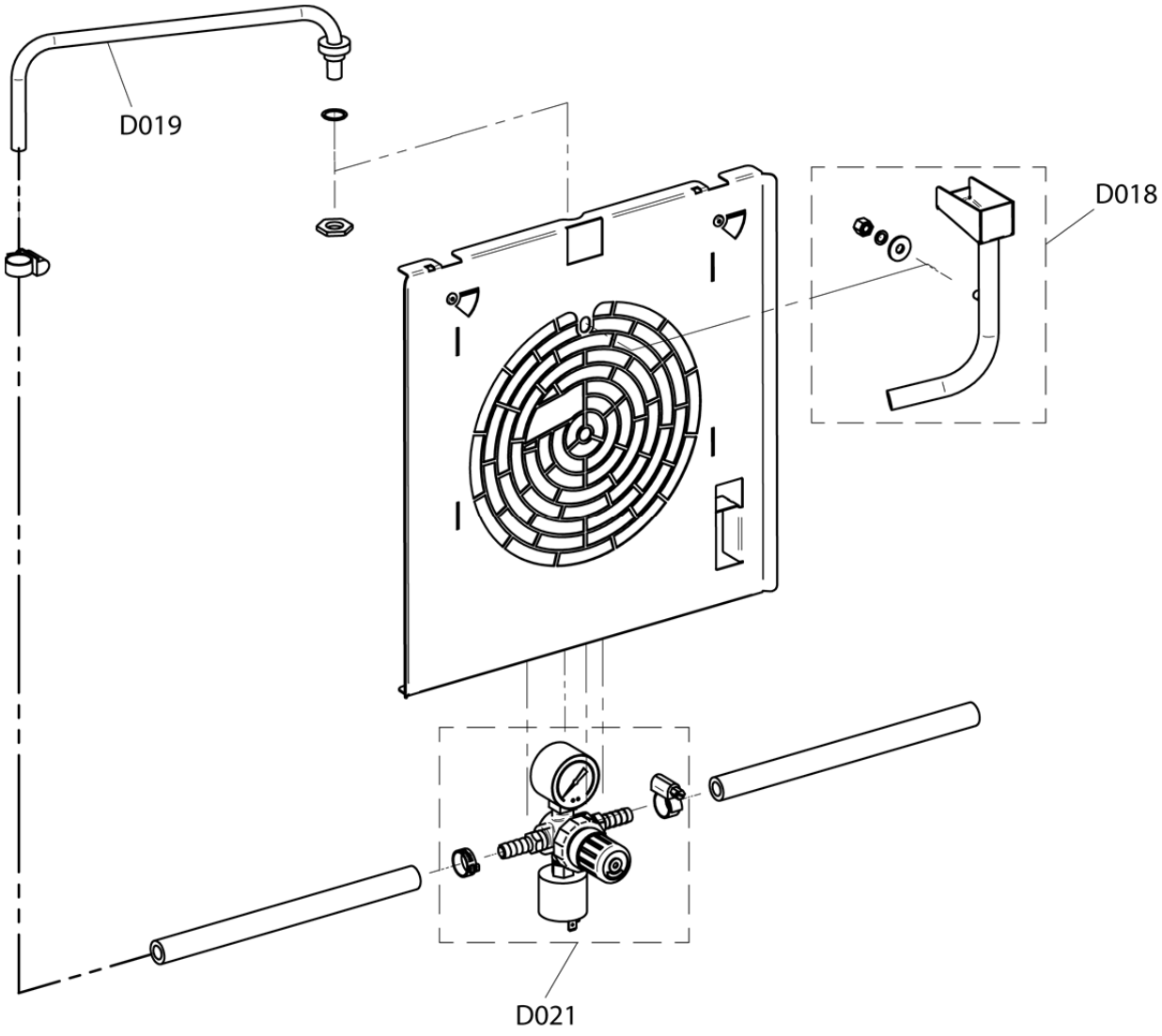
Checking the power supply module

1.		After fitting the power supply module, check that the green LED (45) is illuminated. **Result:** The power supply module is working properly.
		If the green LED is not illuminated, the power supply module is faulty and must be replaced. If the green LED is showing blinking signals, there may be a short circuit on the secondary side.

10.5 Replacing the parts of the injection system

10.5.1 Construction of the injection system

Construction of the injection system



Components of the injection system

Item	Name	Function	CID
1	Injector distributor	Injector J-distributor with fixing accessories	D018
2	Injection pipe	Water supply line	D019
3	Pressure switch T-piece	Pressure switch with nozzle	G064 + G065
4	Self-regulating solenoid valve	Solenoid valve with self-regulating control of the water pressure	G001

10.5.2 Removing and fitting the injector distributor on the suction panel

Component

D018 Injector distributor

Tools required

10 mm socket wrench

Requirements

Check that the following requirements have been met:
- The appliance has been disconnected from the power supply and protective measures taken to ensure the power cannot be switched on again.
- The slide racks have been removed.
- The suction panel has been removed

Removing the injector distributor from the suction panel

1. The injector distributor is screw-fastened to the rear of the suction panel by a nut (size 10). Unscrew the nut and remove the injector distributor.

Fitting the injector distributor to the suction panel

1. Fix the injector distributor back onto the rear of the suction panel using the nut (size 10).

10.5.3 Removing and fitting the injection pipe (water supply line) of the direct injection system

Component

D019 Injection pipe (water supply line)

Tools required

- Open-ended wrench size 22
- 7 mm socket wrench

Requirements

Check that the following requirements have been met:
- The appliance has been disconnected from the power supply and protective measures taken to ensure the power cannot be switched on again.
- The slide racks have been removed.
- The suction panel has been removed

Removing the injection pipe (water supply line)

1.	Undo the box nut using the open-ended wrench (size 22).
2.	Pull the injection pipe into the wiring compartment.
3.	Use a socket wrench (size 7) to undo the hose clip on the water hose and pull the injection pipe off the hose.

Fitting the injection pipe (water supply line)

1.	Follow the steps in the reverse order to fit the injection pipe, using the hose clip and box nut.

10.5.4 Removing and fitting the T-piece for the pressure switch and pressure gage

Component

D021 T-piece

Tools required

- 7 mm socket wrench
- Needle

Requirements

Check that the following requirements have been met:
- The appliance has been disconnected from the power supply and protective measures taken to ensure the power cannot be switched on again.
- The slide racks have been removed.
- The suction panel has been removed

Removing the pressure switch T-piece

1.	Unscrew the pressure gage and pressure switch from the T-piece.
2.	Undo the hose clip at the top and bottom of the T-piece and remove the T-piece.

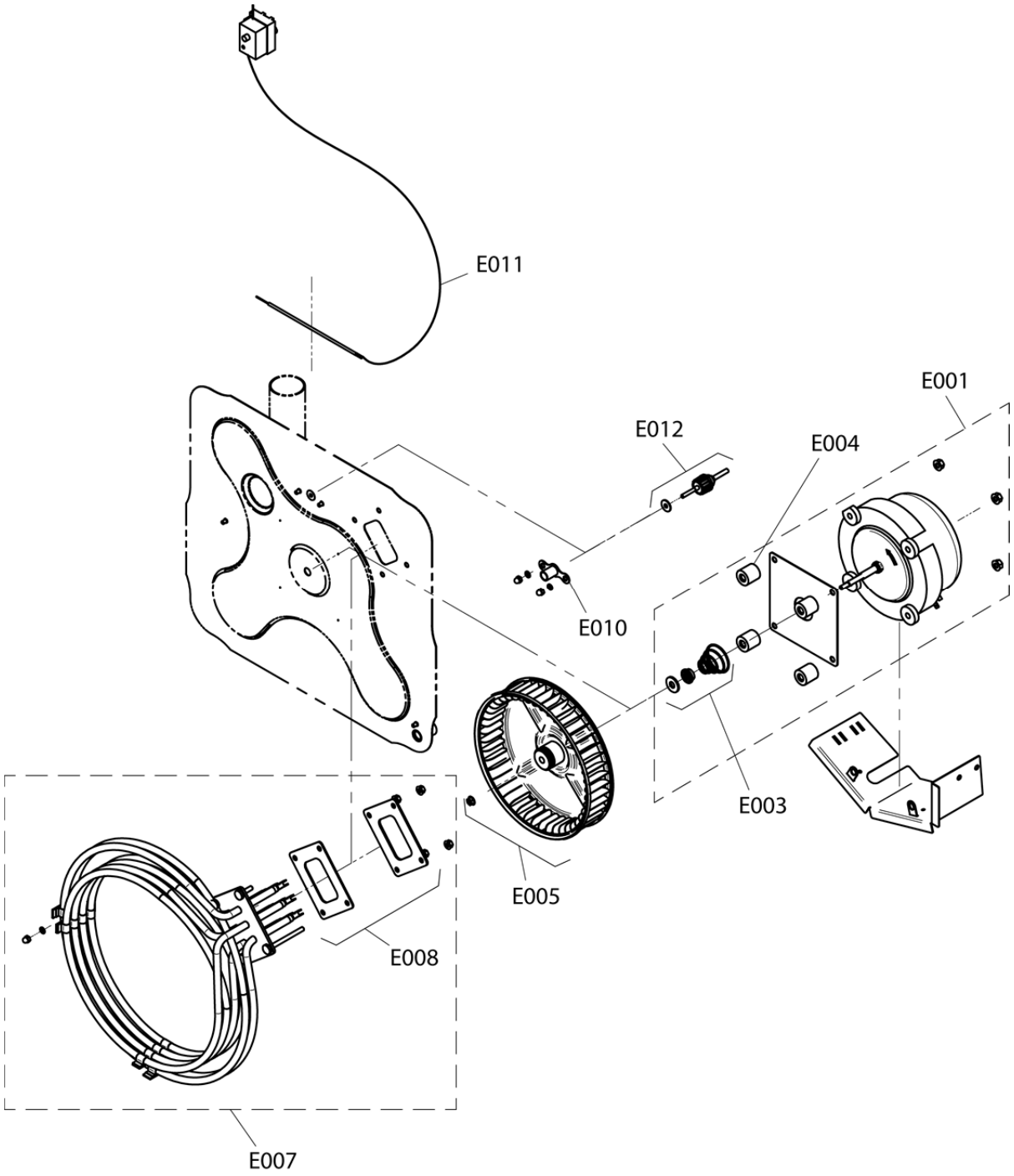
Fitting the pressure switch T-piece

1.		Clear any blockage in the T-piece with a needle after servicing.
7.		Follow the steps in the reverse order to refit the removed parts.

10.6 Replacing components of the convection system

10.6.1 Construction of the convection system

Construction of the convection system



Components of the convection system

Item	Name	Function	CID
1	Motor	Pre-assembled with set of seals and motor fixing plate	E001
2	Motor shaft seal	Labyrinth seal	E003
3	Spacer sleeve	For motor	E004
4	Fan wheel		E005
5	Tubular heater		E007
6	Gasket for tubular heater		E008
7	Shielding plate for oven sensor		E010
8	Safety thermostat	Safety thermostat with installation parts	E011
9	Oven sensor	Thermocouple sensor	E012

10.6.2 Removing and fitting the motor / fan wheel

Component

E001 motor

Tools required

- 8 mm socket wrench
- 10 mm socket wrench
- Removal tool with shaft sleeve to protect the thread

Requirements

Check that the following requirements have been met:

- The appliance has been disconnected from the power supply and protective measures taken to ensure the power cannot be switched on again.
- The top box has been removed.
- The rear panel has been removed.
- The slide racks have been removed.
- The suction panel has been removed

Removing the motor

1.	Unscrew the M5 hex nut from the motor shaft using a wrench or socket wrench size 8.
2.	Pull the fan wheel off from the front. Use a fan removal tool with shaft sleeve to protect the thread. **Please note:** If the fan wheel will not come off, you can heat the fan-wheel boss or tap the shaft of the removal tool gently.
3.	Undo the cable ties of the wiring harness and disconnect the motor: ▪ 2x at capacitor C1 ▪ Wago terminals in the motor supply line
4.	Unscrew the 4 M6 hex nuts of the motor using a wrench or socket wrench size 10 and remove the motor shielding plate.
5.	Take the motor including motor fixing plate off from the back. **Caution:** Do not lose the mounting spacers.

Fitting the motor

1.	Place the motor assembly (pre-assembled with set of seals and motor fixing plate) onto the spacer sleeves. Make sure that all the mounting spacers are present.
2.	Place the motor shielding plate back onto the two lower mounting spacers.
3.	Fix the motor firmly in place using the 4 nuts with 4x washer and safety washer. Tightening torque: 5 Nm
4.	Reconnect the motor to the Wago terminals in the motor supply line and to the capacitor C1.
5.	Fit the second rubber seal onto the motor shaft.
6.	Fix the fan wheel with the hex nut M6. Tightening torque: 2.5 Nm Check the gap between the cooking chamber wall and the fan wheel: 10 +/-2 mm
7.	Heat the appliance in the convection program to 250 °C and tighten the hexagonal nut. Tightening torque: 2.5 Nm

10.6.3 Removing and fitting the hot-air heater

Component

E007 Hot-air heater

Tools required

- 7 mm socket wrench
- 8 mm socket wrench

Requirements

Check that the following requirements have been met:
- The appliance has been disconnected from the power supply and protective measures taken to ensure the power cannot be switched on again.
- The top box has been removed.
- The rear panel has been removed.
- The slide racks have been removed.
- The suction panel has been removed

Removing the hot-air heater

1.	Unplug the connectors from the back of the heater and remove the ground wire using a wrench or socket wrench size 8.
2.	At the top and bottom of the connections, slide the insulation aside slightly and undo the two M5 nuts using a pipe wrench or socket wrench size 8.
3.	Undo the M5 hex nut and use a wrench size 7 to unscrew the heating-element fixing plate from the cooking chamber.
4.	Pull the heater out from the front.
5.	Pull the heater out from the front.

Fitting the hot-air heater

1.	Adjust the conductor rings of the new heater if necessary. Make sure that the heating-element rings are spaced evenly.
2.	Slide the seal over the heating conductors of the heater as far as the fixing plate.
3.	Insert the new heater into the old position in the cooking chamber and screw the heating-element fixing plate firmly in place with the M5 hexagonal nut and plain washer using a pipe wrench or socket wrench size 7.
4.	Fit the heater fixing plate onto the rear panel of the appliance, above and below the heater, with the two M5 hexagonal nuts using a pipe wrench size 8.
5.	Adjust the position of the heater so that there is a uniform gap between heater and fan wheel all around its circumference.
6.	Plug the heater connecting leads back onto the connectors of the heater and refit the ground wire in the center between the connectors using an M5 hexagonal nut and a pipe wrench size 8.

10.6.4 Removing and fitting the safety thermostat

Component

E011 Safety thermostat

Sensor type (safety thermostat): 8,M

B7

Tools required

Phillips screwdriver

Requirements

Check that the following requirements have been met:
- The appliance has been disconnected from the power supply and protective measures taken to ensure the power cannot be switched on again.
- The top box has been removed.
- The rear panel has been removed.

Removing the safety thermostat

1.	Open up the insulation carefully and pull the sensor out. **Caution:** Two layers of insulation
2.	Unplug the 6 connectors from the thermal cutout.
3.	Undo the 2 cross-head screws and remove the thermal cutout assembly.

Fitting the safety thermostat

1.	Screw the housing on tightly using the 2 cross-head screws.
2.	Plug the 6 connectors back onto the thermal cutout.
3.	Clamp the sensor back under the clamping plate on the rear panel of the appliance (same position as the old sensor).
4.	Reseal the insulation using the aluminum tape supplied.

10.6.5 Removing and fitting the oven sensor

Component

E012 Thermocouple sensor

Sensor type (safety thermostat): 8,M

B6

Tools required

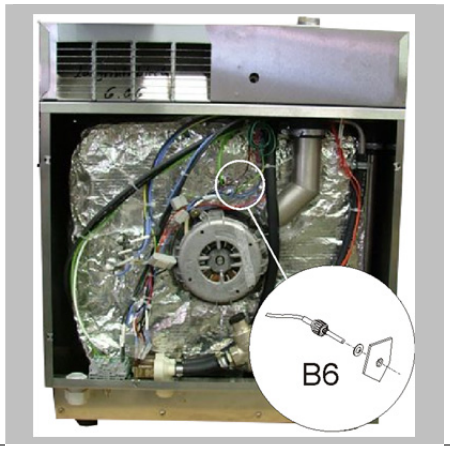
Multitool

Requirements

Check that the following requirements have been met:

- The appliance has been disconnected from the power supply and protective measures taken to ensure the power cannot be switched on again.
- The top box has been removed.
- The rear panel has been removed.

Removing the oven sensor

1. 

Unscrew the oven sensor.

Fitting the oven sensor

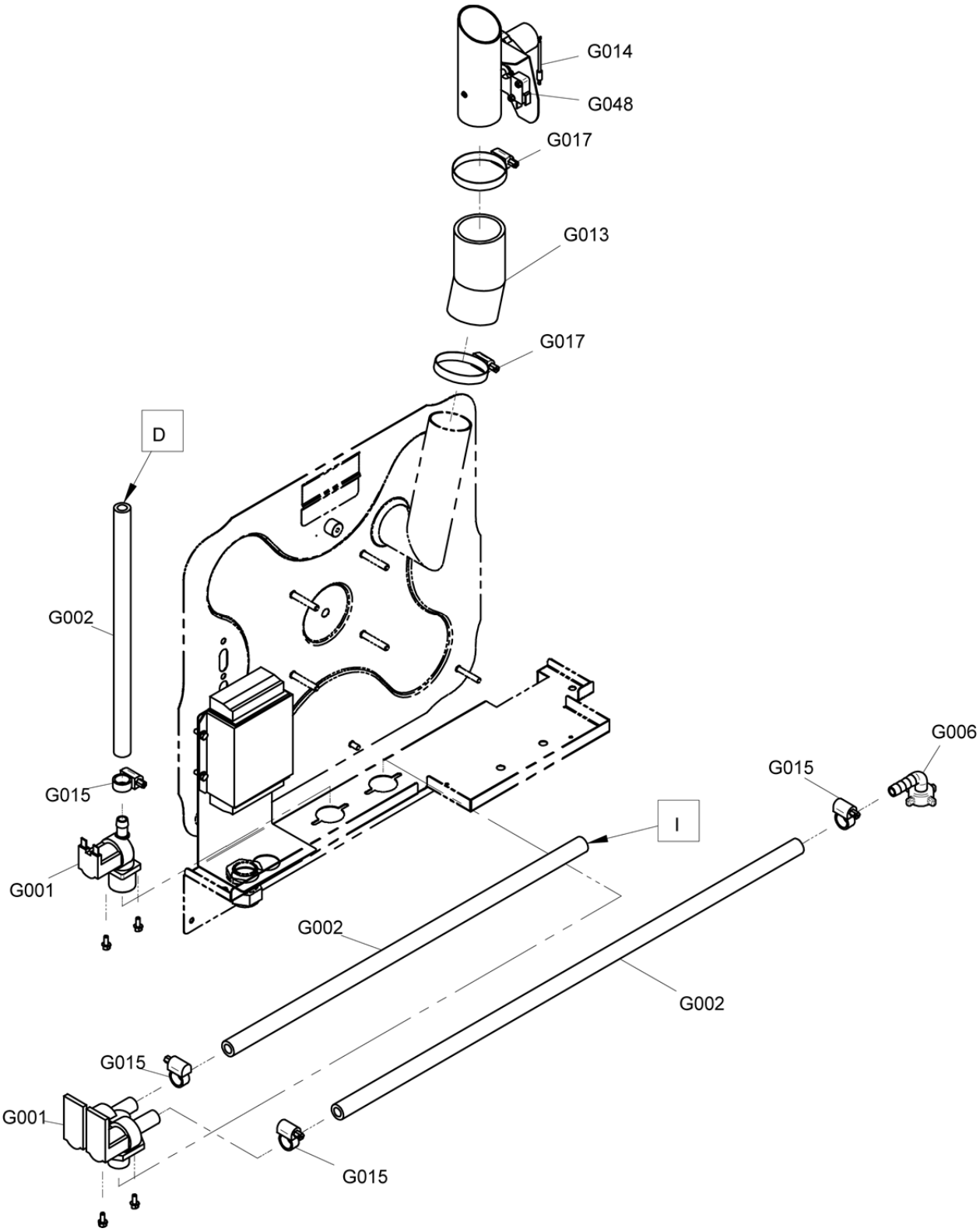
Follow the exact opposite sequence in order to install the oven sensor.

Always use a new graphite seal when fitting a new device.

10.7 Replacing parts of the water supply system

10.7.1 Construction of the water supply system

Construction of the water supply system



Components of the water supply system

Item	Name	Function	CID
1	Solenoid valve		G001
2	Hot water pipe		G002
3	Right-angle pipe connector	With seal	G006
4.	Tube	Fixing parts for ventilation port	G013
5.	Dehumidifier valve	With ventilation port	G014
6.	Hose clip		G015
7.	Hose clip		G017
8.	Micro-switch	For controlling the valve	G048

10.7.2 Removing and fitting the dehumidifier valve

Component

G014 Dehumidifier valve

Tools required

Phillips screwdriver

Requirements

Check that the following requirements have been met:
- The appliance has been disconnected from the power supply and protective measures taken to ensure the power cannot be switched on again.
- The top box has been removed.

Removing the dehumidifier valve

1.	Undo the hose clip on the dehumidifier pipe.
2.	Pull the plug-in contacts off the micro-switch and off the extended stranded wires of the actuating motor.
3.	Pull the dehumidifier pipe with the valve assembly off the dehumidifier hose from above.

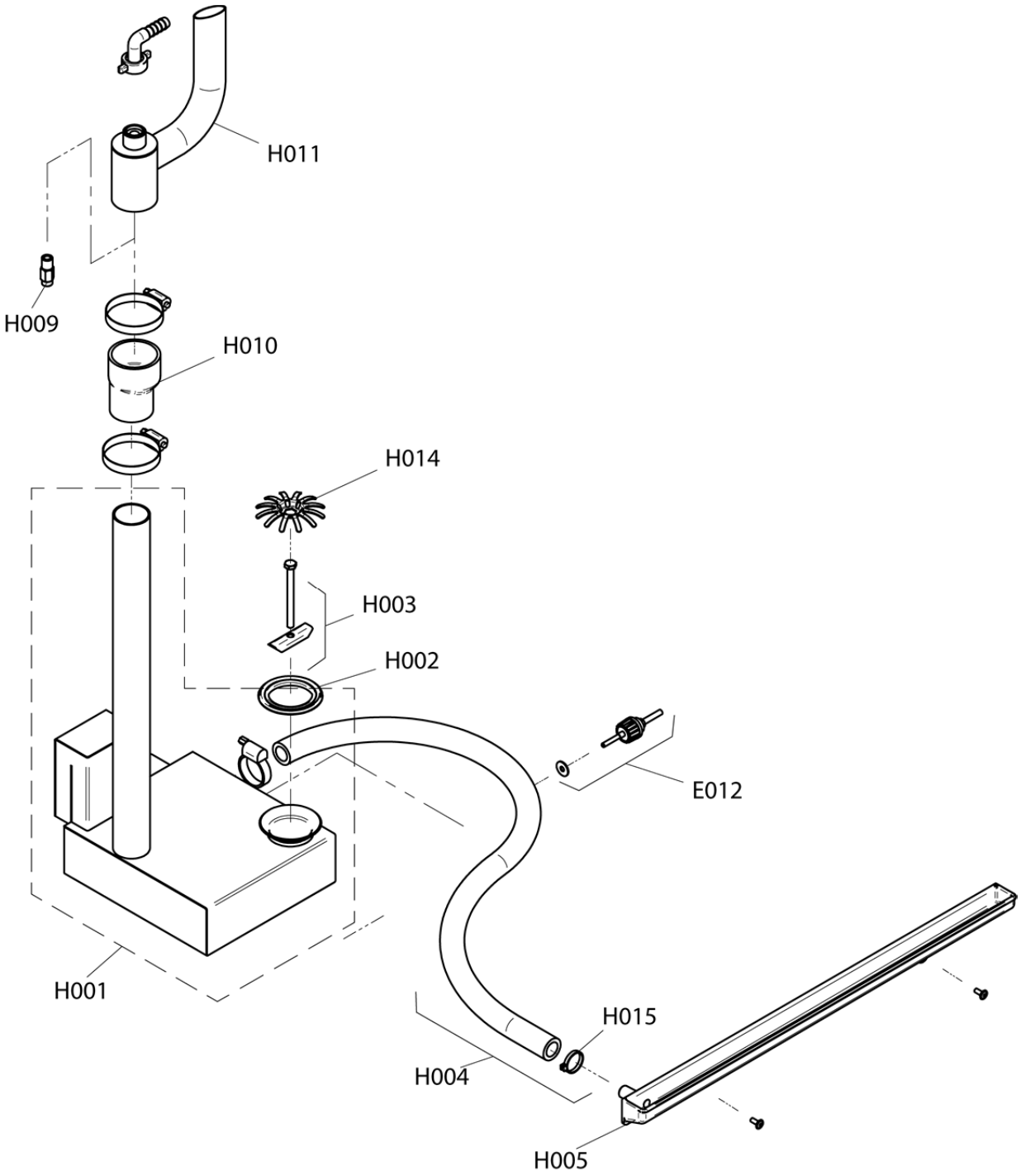
Fitting the dehumidifier valve

Follow the steps in the reverse order to fit the dehumidifier valve.

10.8 Replacing components of the waste water system

10.8.1 Construction of the waste water system

Construction of the waste water system



Components of the waste water system

Item	Name	Function	CID
1	Condenser	Collects the wastewater, monitors and cools the temperature	H001
2	Condenser sensor	Monitors the wastewater temperature in the condenser	E012
3	Condenser seal	Seals the transition area from the cooking chamber to the condenser	H002
4.	Fixing parts for condenser	Screw secures the condenser to the oven floor with the retaining clip.	H003
5	Drain pipe	Empties the appliance drip tray into the condenser	H004
6	Appliance drip tray	Collects the dripping water from the interior pane and the door drip tray	H005
7	Condenser quenching nozzle	Forms a water cone in the air vent for cooling down	H009
8	Air vent tube	Fixing parts for air vent (air-outlet pipe end)	H010
9	Air vent	Guides the steam vapours out of the condenser and the cooling water into the condenser	H011
10	Dirt filter for oven drain	Prevents the entry of coarse particles into the condenser box	H014
11	Heat-resistant cable tie		H015
12	Oven sensor	Thermocouple sensor screwed in with seal	E012
13	Hose clip		G017

10.8.2 Removing and fitting the condenser

Component

H001 Condenser

Tools required

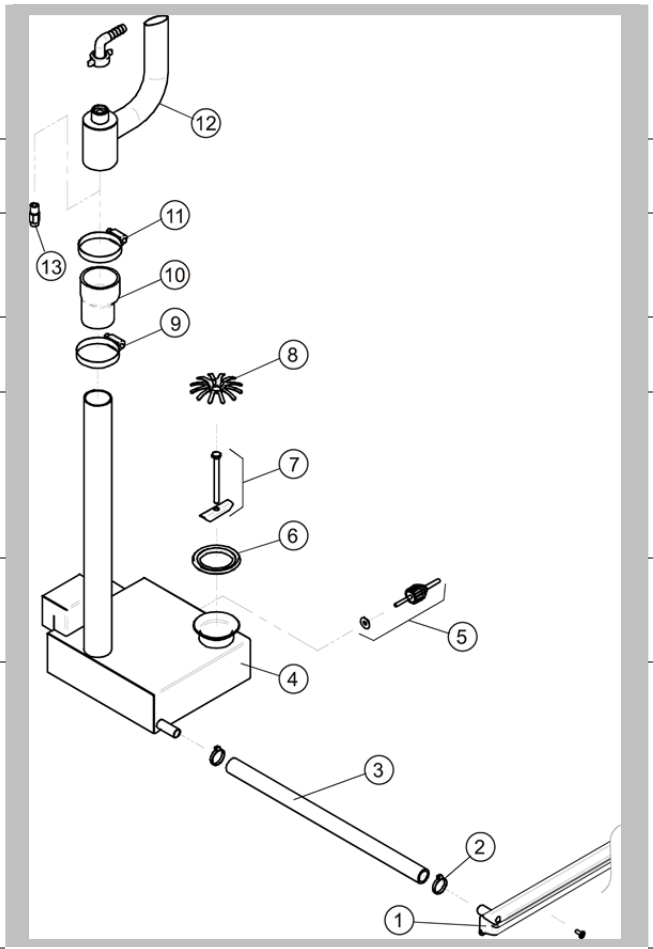
- 8 mm socket wrench
- 10 mm socket wrench
- Lubricant e.g. cooking oil

Requirements

Check that the following requirements have been met:

- The appliance has been disconnected from the power supply and protective measures taken to ensure the power cannot be switched on again.
- The drain has been disconnected from the rear of the appliance.
- The slide racks have been removed.
- The suction panel has been removed.
- The top box has been removed.
- The rear panel has been removed.
- The connecting bracket has been removed.
- The left side panel of the outer casing has been removed or shifted backwards.
- The inside face of the front section is accessible.

Removing the condenser

1.		On the inside of the front section, remove from the connecting pipe the connecting hose (3) between the door drip tray (1) and the condenser (4).
2.		Undo the hose clip (2) carefully and pull the hose off the pipe end.
3.		Unscrew the screw in the oven drain using a wrench or socket wrench size 8, and remove the screw.
4.		Remove the condenser sensor (5) from the rear of the appliance.
5.		Remove the top hose clip (11) of the black vent tube from the vent pipe and pull the vent pipe section (containing the quenching nozzle) off the appliance from above.
6.		Remove the M6 lock nut and plain washer from the fixing bracket of the condenser.
7.		Use a suitable tool to lift up the cooking chamber at the rear and pull or slide the condenser out from the back. **Caution:** Take care not to damage the insulation in the process.
8.		Clean the condenser with ConvoClean new or ConvoClean forte and afterwards rinse out thoroughly with plenty of water. If the condenser is suffering from severe limescale, then use ConvoCal to remove the limescale chemically.

Fitting the condenser

1.	Use a suitable tool to lift up the cooking chamber at the rear and slide the condenser back into its old position under the cooking chamber. **Caution:** Take care not to damage the insulation in the process.
2.	Unscrew the screw or nut in the oven drain using a wrench (size 8), and remove the screw.
3.	Place the condenser **fitted with new O-ring** (lubricated with e.g. cooking oil) on the oven drain, then lift the condenser up against the cooking chamber and fix it in place with a retaining clip and the hexagonal bolt with washer using a wrench (size 8). **Please note:** Tighten the hexagonal bolt until the retaining clip is pulled up against the nut on the base of the condenser.
4.	Clip the condenser into the fixing bracket on the rear of the appliance and fix the condenser in place by tightening the lock nut (M6) fitted with washer.
5.	Fit the ventilation pipe in the wiring compartment. To do this, guide the ventilation pipe on the rear of the cooking chamber upwards to the side. Plug on the steam vent pipe section from above and fix firmly with a hose clip.
6.	Fit the condenser sensor in the wiring compartment. To do this, screw the condenser sensor B3 back in, fitted with a new seal.
7.	Fit the hose to the appliance drip tray in the wiring compartment. To do this, push the hose to the appliance drip tray back onto the steam vent pipe section and secure the hose with a cable tie.
8.	Fit the filter back onto the cooking chamber drain.

10.8.3 Removing and fitting the condenser sensor

Condenser sensor component

E012 Thermocouple sensor

Sensor type (safety thermostat): 8,M

Screw-in sensor B3

Tools required

Multitool

Requirements

Check that the following requirements have been met:

- The appliance has been disconnected from the power supply and protective measures taken to ensure the power cannot be switched on again.
- The drain has been disconnected from the rear of the appliance.
- The top box has been removed.
- The rear panel has been removed.

Removing the condenser sensor

1. Unscrew the condenser sensor.

Fitting the condenser sensor

Follow the exact opposite sequence in order to install the oven sensor.

Always use a new graphite seal when fitting a new device.

WELBILT DEUTSCHLAND GMBH
TALSTRASSE 35, 82436 EGLFING | GERMANY, T +49(0)8847 67-0, F +49(0)8847 414
WWW.CONVOTHERM.COM

Combi oven
OES mini easyTouch

Serial no.
Item no.
Order no.

Additional technical documentation can be found in the download center at :
www.convotherm.com