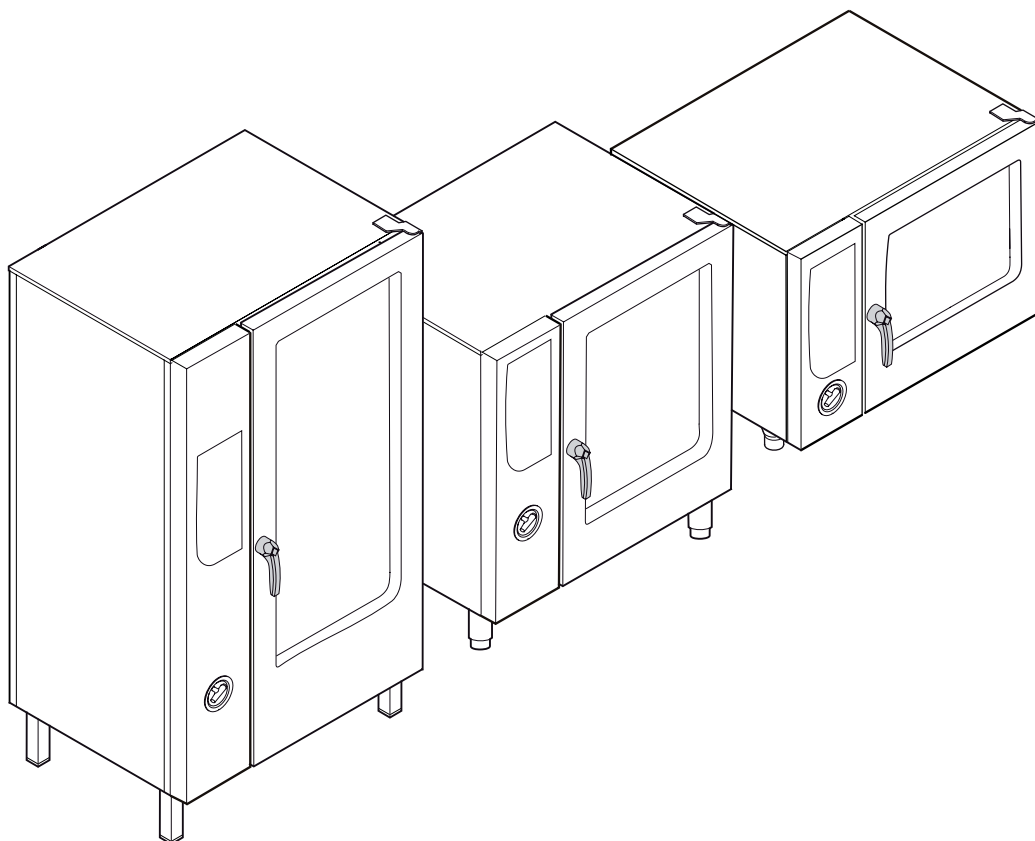


Planning and installation instructions

# Combisteamer (electric)



Type no. (SmartCombi)	Type no. (ClassicCombi)	Size
ESC61XXXX	ECC61XXXX	615
ESC62XXXX	ECC62XXXX	620
ESC11XXXX	ECC11XXXX	115
ESC12XXXX	ECC12XXXX	120
ESC21XXXX	ECC21XXXX	215
ESC22XXXX	ECC22XXXX	220



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# 1 Planning

## 1.1 Standards and regulations

### 1.1.1 Ensure conformity with standards

→ Ensure that your plans conform to the standards and regulations applying at the installation location.

#### NOTICE

The following overviews assist with orientation. They make no claim to be complete.

### 1.1.2 Water

Standard	Relates to	Description
DIN 1988-4	Drinking water supply	Drinking water protection, preservation of the drinking water quality

Table 1: Standards/regulations relevant to water

### 1.1.3 Waste water

Standard	Relates to	Description
DIN 1986-100	Waste water quality	Additional specifications to DIN EN 752 and DIN EN 12056: Drainage systems on private ground

Table 2: Standards/regulations relevant to waste water

### 1.1.4 Electricity

Standard	Relates to	Description
DIN VDE 0100 ff.	Requirements for electronic components	Provisions for the erection of high-voltage current systems with nominal voltages up to 1000 V
DIN VDE 0100-540	Potential equalisation	Erection of low-voltage systems part 5-54: Selection and erection of electrical equipment – Earthing arrangements, protective conductors and protective potential equalisation conductors
DIN VDE 0100-430	Potential equalisation of the location	Erection of low-voltage systems part 4-43: Protection for safety – Protection against overcurrent

Table 3: Standards/regulations relevant to electricity

### 1.1.5 Room air

Standard	Relates to	Description
VDI 2052	Priority circuit room ventilation system	Ventilation equipment for kitchen, basis for planning the ventilation of commercial kitchens as well as for calculating the size and construction of ventilation systems. It applies in connection with the complete reference work of DIN 1946.
ASR 5	Emissions and comfort	General conditions for working environments in kitchens with regard to the planning of kitchen ventilation systems.

Table 4: Standards/regulations relevant to room air

### 1.1.6 Safety

Standard	Relates to	Description
BGR 111	Hazards in kitchens (formerly ZH 1/37)	Safety regulations for kitchens, kitchen safety equipment (fire extinguishers...)

Table 5: Standards/regulations relevant to safety

### 1.1.7 Food hygiene

Standard	Relates to	Description
Regulation (EG) Nr. 852/2004	Documentation of heating temperatures according to HACCP principles	Regulation about food hygiene

Table 6: Standards/regulations relevant to hygiene

### 1.1.8 Relevant laws, institutions and authorities

Standard	Relates to	Name of the institute/authority
TAB (Technical Connection Conditions) GAS (Low Pressure Gas Supply (NDAV))	Gas supply Installation of the unit	Regional gas or energy supplier (GVU) or network operator
BauO (Building Regulations); LBO (Regional Building Regulations)	Gas supply Installation of the unit	Building inspection authorities
GewO (Trade, Commerce and Industry regulations)	Installation of the unit	Trading standards office
BauO (Building Regulations); FeuVo (Ordinance on Firing Installations), BISchV (Federal Emission Control Ordinance)	Gas supply Installation of the unit, emissions	Responsible district chimney/heating inspector
AbwV (Waste Water Ordinance)  ATV information sheets (Association of Waste Water Technicians)	Installation of the unit Water/waste water connections	Water/waste water association or authority
TAB (Technical Connection Conditions) POWER (NAV - Ordinance on Low-Voltage Connections)	Installation of the unit Mains connection	Technical connection conditions for connecting to the low voltage mains network, requirements applying to the installation location  Mains network operators, power suppliers

Table 7: Relevant laws, institutions, authorities

## 1.2 Package dimensions and weights

### NOTICE

These specifications may be modified for technical reasons.



Size	Package dimensions (in.)	Gross weight (lb.)
	Depth x width x height	
615/620	42.5 x 37.8 x 40.2	374.8
115/120	42.5 x 37.8 x 50.4	429.9
215/220	45.7 x 37.8 x 86.6	826.7

Table 8: Package dimensions and weights

## 1.3 Weight

### NOTICE

These specifications may be modified for technical reasons.

Size	Weight (lb.)
615	286.6
620	297.6
115	352.7
120	396.8
215	782.6
220	782.6

Table 9: Weight

## 1.4 Scale drawings

### 1.4.1 Abbreviations, installation dimensions

Abbreviation	Meaning
B	Width
BL	Width, distance from wall to the left of the unit
BR	Width, distance from wall to the right of the unit
H	Height
HD	Height, distance from the ceiling
HF	Height, unit feet
HG	Height, overall
HT	Height, table
T	Depth
TH	Depth, distance to wall behind the unit

Table 10: Abbreviations, installation dimensions

## 1.4.2 Installation dimensions

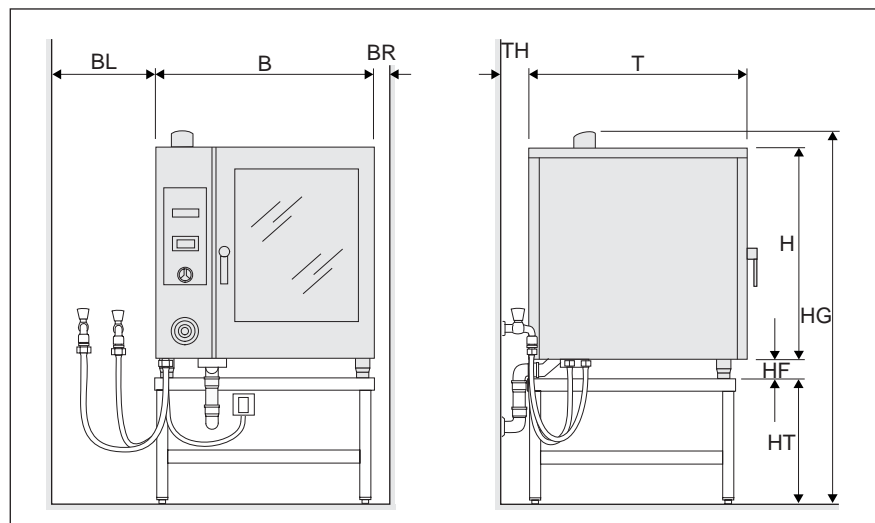


Figure 1: Installation dimensions of combisteamers 615/620 and 115/120

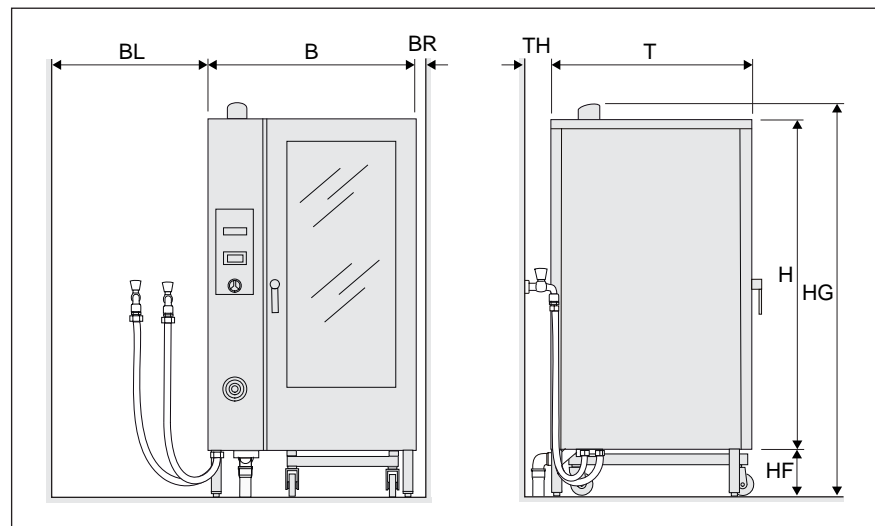


Figure 2: Installation dimensions, combisteamer 215/220

Size	B	BL	BR	H	HF	HG	HT	T	TH
615/620	997	50	50	690	100	1640	850	799	50
115/120	997	50	50	960	100	1640	580	799	50
215/220	1075	50	50	1722	238	1960		813	50

Table 11: Installation dimensions in mm

### NOTICE

A clearance of at least 50 mm from walls must be maintained to the right and the left of the unit as well as behind it.

A minimum distance of 500 mm to the left is recommended for servicing.

When using rack trolleys, the distance to the left of the unit should be at least 800 mm to allow the trolley to be positioned at the side.

### 1.4.3 Unit dimensions

Abbreviation	Meaning
A	Drain (waste water)
AL	Air outlet
EA	Electrical connection
EW	Soft water, cold
KE	Interface
KW	Cold water, hard
LOA	Performance optimisation system
PA	Potential equalisation connection
S	Centre of gravity
STL	Control lead, external

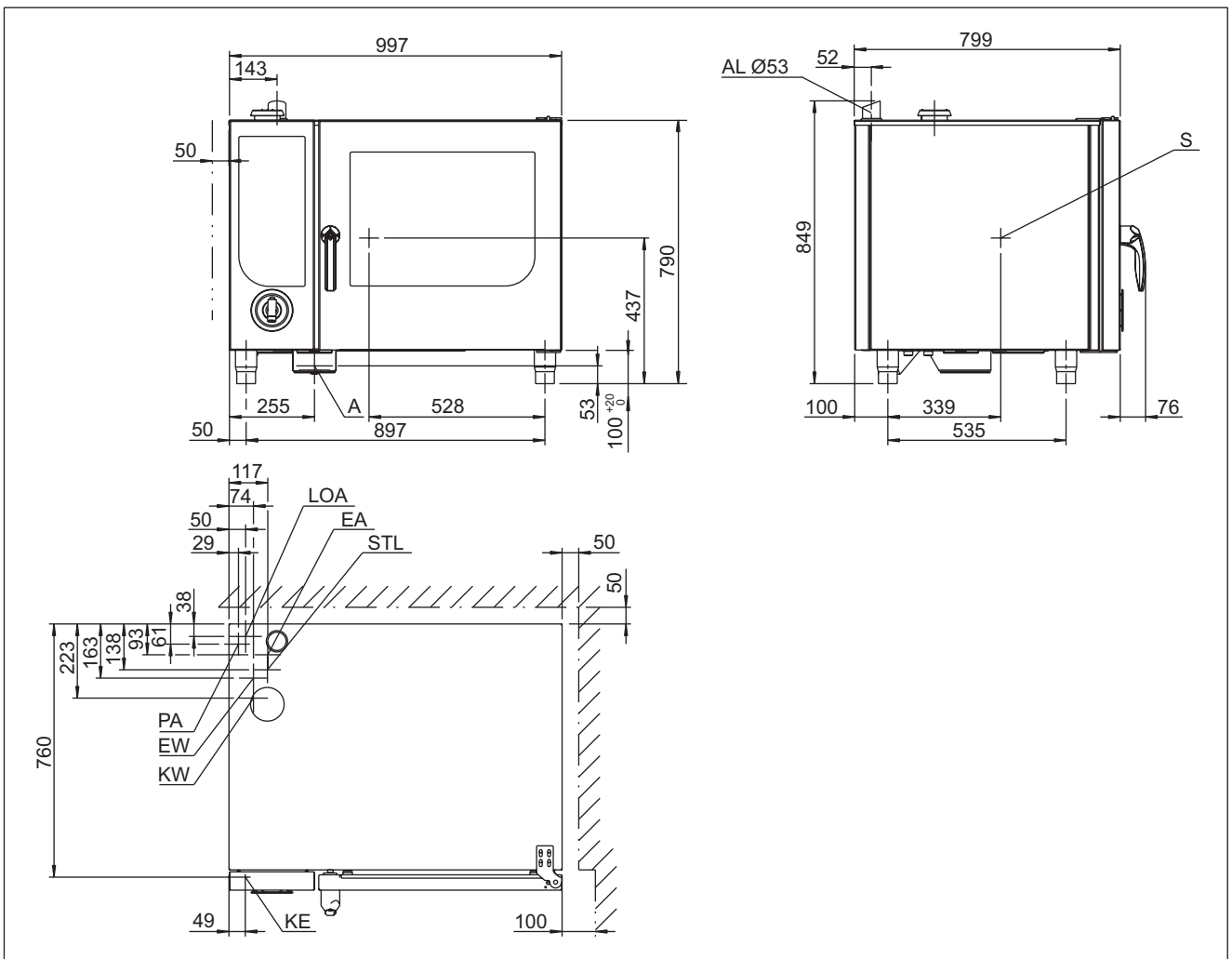


Figure 3: CombiSteamer 615/620, unit dimensions in mm

Planning

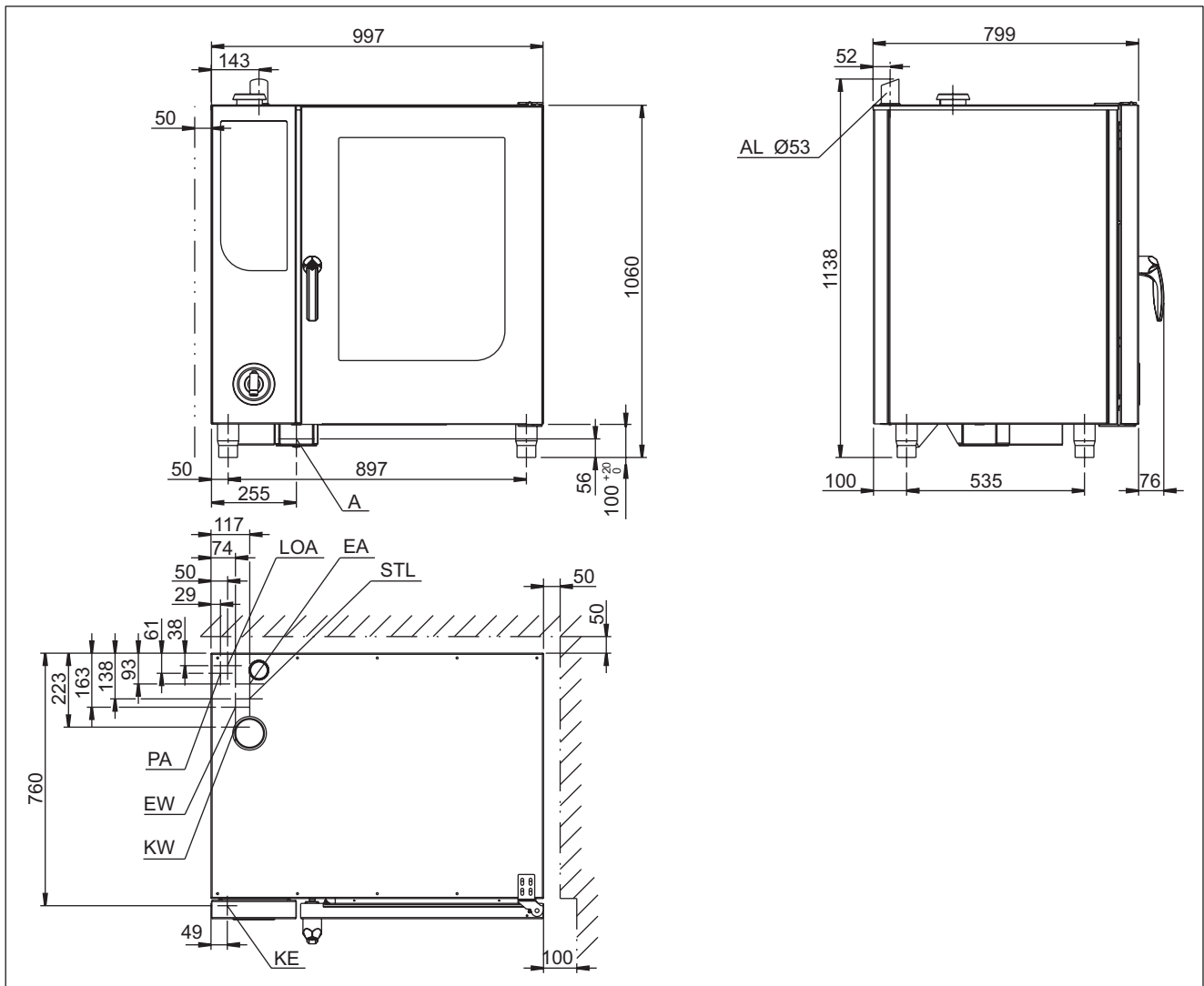


Figure 4: Combi Steamer 115/120, unit dimensions in mm



## 1.5 Specifications, water

### 1.5.1 Specifications, soft water

Parameters	Value
Type	Drinking water, cold
Supply pressure	2–6 bar/200–600 kPa
Hardness	< 1.5 mmol/l, < 5 °dH (soft water)
Thread	¾" outside thread
Connection	DN 15 hose with ¾" union nut

Table 12: Specifications, soft water

### 1.5.2 Specifications, hard water

Parameters	Value
Type	Drinking water, cold
Temperature	Up to 50 °C (122 °F)
Supply pressure	2–6 bar/200–600 kPa
Hardness	0–4 mmol/l, 0–25 °dH
Thread	¾" outside thread
Connection	DN 15 hose with ¾" union nut

Table 13: Specifications, hard water

### 1.5.3 Specifications, waste water

Parameters	Value
Temperature	Up to 80 °C (176 °F) For adjusting the waste water temperature, see chapter "Standard settings" in the operating manual.
Connection	DN 50 direct connection

Table 14: Specifications, waste water

## 1.6 Specifications, power supply

Parameters	Size					
	615	620	115	120	215	220
Protection type	IP X5					
Mains type	3 PE / AC 50/60 Hz 3 NPE / AC 50/60 Hz					
<b>Voltage (V)</b>	<b>208</b>					
Connected load (kW)	10,4	17,6	15,9	27,5	31,8	55

Parameters	Size					
	615	620	115	120	215	220
Fuses (A)	35	50	50	80	100	180
<b>Voltage (V)</b>	<b>240</b>					
Connected load (kW)	13,7	23,3	21	36,5	42	73
Fuses (A)	35	63	63	100	125	180
<b>Voltage (V)</b>	<b>380</b>					
Connected load (kW)	10,3	20,4	15,5	29,6	30,9	59,1
Fuses (A)	20	35	25	50	50	100
<b>Voltage (V)</b>	<b>400</b>					
Connected load (kW)	10,9	21,4	16,5	31,2	32,7	62
Fuses (A)	16	35	25	50	63	125
<b>Voltage (V)</b>	<b>415</b>					
Connected load (kW)	11,3	22,2	16,9	32,3	33,7	64,6
Fuses (A)	20	35	25	50	50	100
<b>Voltage (V)</b>	<b>440</b>					
Connected load (kW)	10,9	21,4	16,3	31,0	32,5	61,9
Fuses (A)	16	35	25	50	50	100
<b>Voltage (V)</b>	<b>480</b>					
Connected load (kW)	12,3	20,9	18,9	32,6	37,7	65,2
Fuses (A)	16	35	25	50	50	80

Table 15: Specifications, power supply

## 1.7 Heat loss

Parameters	Size					
	615	620	115	120	215	220
Mains type	3 PE / AC 50/60 Hz 3 N PE/AC 50/60 Hz					
<b>Voltage (V)</b>	<b>208</b>					
Sensible (kW)	1,248	2,112	1,908	3,300	3,720	6,600
Latent (kW)	1,872	3,168	2,862	4,860	5,724	9,900
<b>Voltage (V)</b>	<b>240</b>					
Sensible (kW)	1,644	2,796	2,520	4,380	5,040	8,760
Latent (kW)	2,466	4,194	3,780	6,570	7,560	13,140
<b>Voltage (V)</b>	<b>380</b>					
Sensible (kW)	1,236	2,448	1,860	3,552	3,708	7,092

Parameters	Size					
	615	620	115	120	215	220
Latent (kW)	1,854	3,672	2,790	5,328	5,562	10,638
<b>Voltage (V)</b>	<b>400</b>					
Sensible (kW)	1,308	2,400	1,980	3,600	3,924	7,200
Latent (kW)	1,962	3,600	2,970	5,400	5,886	10,800
<b>Voltage (V)</b>	<b>415</b>					
Sensible (kW)	1,356	2,664	2,052	3,876	4,044	7,752
Latent (kW)	2,034	3,996	3,078	5,814	6,066	11,628
<b>Voltage (V)</b>	<b>440</b>					
Sensible (kW)	1,308	2,568	1,956	3,720	3,900	7,428
Latent (kW)	1,962	3,852	2,934	5,580	5,850	11,142
<b>Voltage (V)</b>	<b>480</b>					
Sensible (kW)	1,476	2,580	2,268	3,912	4,524	7,824
Latent (kW)	2,214	3,762	3,402	5,868	6,786	11,736

Table 16: Heat loss

## 1.8 Ambient atmosphere and noise level

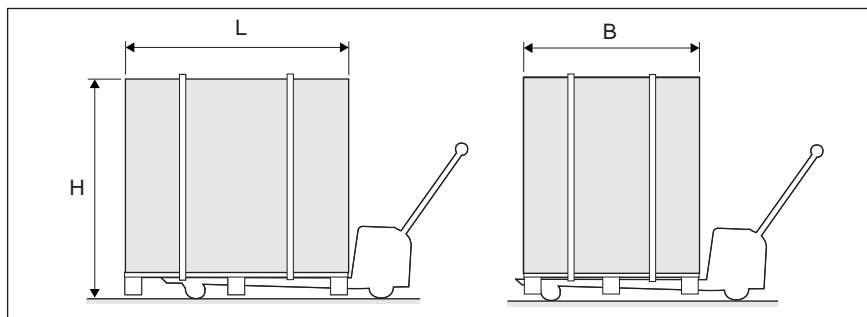
Parameters	Value
Ambient atmosphere	5 °C (41 °F)–40 °C (104 °F), 95% relative humidity, non condensing
Noise level	< 70 dB (A)

Table 17: Ambient atmosphere and noise level



## 2 Transport

### 2.1 Transporting the unit



#### NOTICE

The units are delivered on pallets in cardboard casing. Packed in this way, the units cannot be stacked and are not protected from moisture. Packed units can be transported lengthways or crossways with a pallet truck. Unpacked floor standing units can be lifted at the guiding rails.

#### CAUTION

##### Damage due to incorrect transportation

- Do not position a fork lift in the cooking chamber.
- When using a fork lift truck, make sure that the siphon, which protrudes downwards, and the waste water pipe are not damaged.
- Do not lift tabletop units by the chamber door or the operation panel.
- Always transport units upright, do not tip or stack.

1. Consider the package dimensions and weight when choosing a method of transport (see [Chapter "Package dimensions and weights", Page 8](#)).
2. Always transport units upright, do not tip or stack.
3. Secure pallets against slipping and tipping over.

# 3 Installation

## 3.1 Installation information

### Before installing

#### NOTICE

Examine the unit for transportation damage. Do not install or use damaged units.

Remove the protective film from the external panels before using for the first time.

Remove foam transport protection from the chamber.

### Fire prevention regulations

#### NOTICE

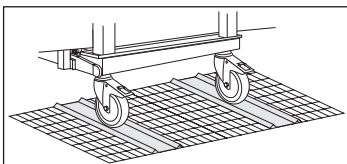
Observe the local fire prevention regulations when installing near to materials that are heat sensitive or endangered by fire.

Covers on top of the unit must be fire-proof.

Units may only be installed on or against fire-proof surfaces and in compliance with fire prevention regulations.

### Installation in buildings

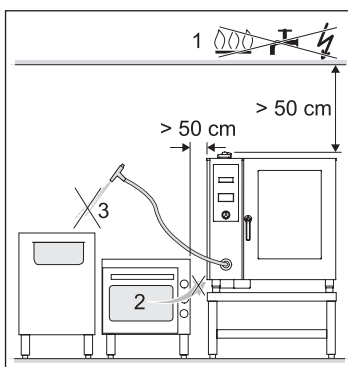
The floor or table must be able to bear the weight of the unit (see [Chapter "Weight", Page 9](#)).



Minimum clearances

If there is a drainage grating in front of the unit, the customer should fit a ramp to enable the rack trolley or loading trolley to be pushed across.

A minimum clearance of 50 mm (2") must be maintained from walls to the sides and behind the unit and at least 0.5 m (1.6 ft.) above the unit for servicing.



When using rack trolleys, there should be a minimum distance of at least 0.8 m (2.6 ft.) to allow the trolley to be positioned at the side.

Heat sources, such as ovens (2) must be at least 0.5 m (1.6 ft.) away so that the cooling air drawn in under the base is not warmed.

#### ⚠ WARNING

##### Possible danger

→ Non-compliance may pose a threat of death or serious injury.

Fryers or deep fat fryers must be positioned outside of the splash zone (3) of the hand shower. Splashes of water in hot grease can lead to serious burns.

**Air intake and blow out vents**

**NOTICE**

The unit's air intake and blow out vents must not be blocked or covered!

Avoid sources of heat and steam at the sides or behind the unit.

If this is not possible, use shields to prevent warm or damp air from being drawn into the unit.

The air intake and blow out vents are situated underneath the unit.

**Affix "Risk of scalding" warning**

A warning notice must be mounted on the door of the cooking chamber if units are installed in such a way that the upper slide-in rails exceed a height of 1.60 m (5.3 ft.).

The warning "Risk of scalding" warns about the danger of scalding that exists when the contents of a container being pulled out cannot be seen.

## 3.2 Mounting the suspension frame in the base frame

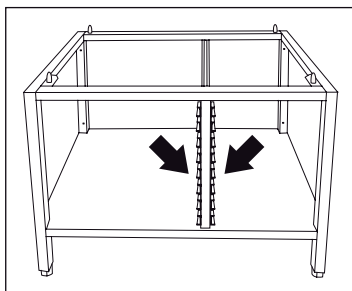
Depending on the version, the base frame can be equipped with suspension frames for taking GN containers, trays and racks.

Bolts on the vertical supports indicate that it is possible to fit suspension frames.

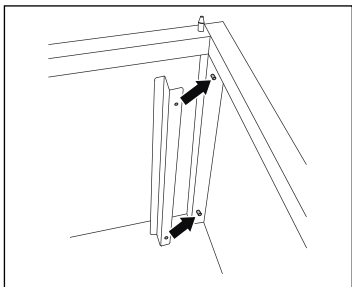
**NOTICE**

The following illustrations show 4 suspension frames (2 sets).

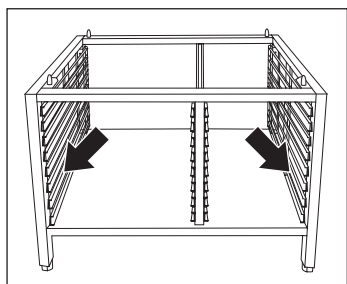
## Installation



1. Mount the inner suspension frames.



2. Push the rear stop profiles (right/left) onto the bolts.



3. Mount the outer suspension frames (right/left).

### 3.3 Installing tabletop units

#### NOTICE

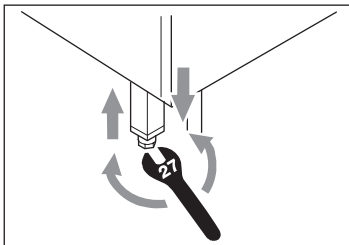
A warning notice must be mounted on the door of the cooking chamber if tabletop units are installed in such a way that the upper slide-in rails exceed a height of 1.60 m (5.3 ft.).

The label warns about the danger of scalding that exists when the contents of a container being pulled out cannot be seen.



1. Observe the instructions for installation (see [Chapter "Installation information", Page 18](#)).
2. Make sure that the table is able to bear the weight of the unit.
3. Position the unit horizontally level. Correct the alignment using the feet, if necessary.
4. Remove moisture and grease from the area for affixing the warning notice.
5. Attach the warning notice on the door of the cooking chamber.

### 3.4 Installing floor standing units



1. Observe the instructions for installation (see [Chapter "Installation information", Page 18](#)).
2. Make sure that the floor is able to bear the weight of the unit.
3. Position the unit horizontally level. Correct the alignment using the feet, if necessary.

### 3.5 Aligning the rack trolley

#### NOTICE

Floor standing units may only be operated with a rack trolley. The rack trolley forms part of the seal of the cooking chamber.

If the rack trolley is not correctly aligned the cooking chamber will not be sealed properly. Water can escape during cooking and the food will not be cooked evenly.

1. Check whether the floor underneath and in front of the unit is level.
2. Level out small differences with the unit's feet.

3. Place spacer plates in the frame of the rack trolley if the condition of the floor is unsuitable.
4. Check the alignment of the rack trolley and correct it if necessary.

The rails in the unit are horizontal.

There is no gap between the sealing plate on the rack trolley and the door seal.

### 3.6 Aligning the rack trolley with slide in system “EasyIn”

Floor standing units in sizes 215 and 220 are equipped with the “EasyIn” slide-in system. With the “EasyIn” slide-in system, the rack trolley is lifted and slides into the unit on rails.

Irregularities of up to 10 mm (0.4") in the floor can be evened out in this way.

#### **⚠ WARNING**

##### **Risk of damage or personal injury**

There is at least 1100 lbs (500 kg) = 4 load points of 275 lbs (125 kg) on the adjustable legs.

- To prevent damage or personal injury, ensure that the floor is strong enough.

#### **CAUTION**

##### **Damage to equipment due to incorrect height adjustment**

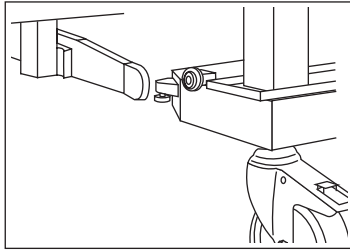
If the minimum distance (y) is not observed, rails and rollers can be damaged.

- Set up the unit horizontally, adjust alignment using the feet, if necessary.
- Observe a minimum clearance of 1 mm in the take-up area.

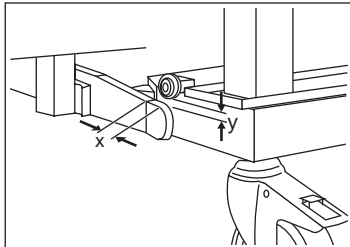
#### **NOTICE**

Floor standing units may only be operated with a rack trolley. The rack trolley forms part of the seal of the cooking chamber.

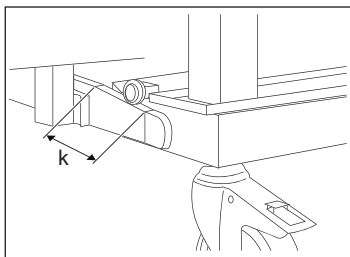
If the rack trolley is not correctly aligned the cooking chamber will not be sealed properly. Water can escape during cooking and the food will not be cooked evenly.



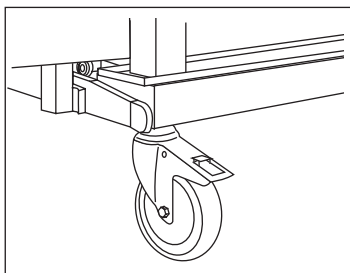
1. Push the rack trolley into the take-up area.



2. In the take-up area (x), there must be a clearance (y) of at least 1 mm between the rollers and the rails.  
The clearance (y) should not exceed 5 mm.  
Correct the clearance (y) using the feet, if necessary.



3. Check whether the rails are horizontal.  
Correct the alignment using the feet, if necessary.



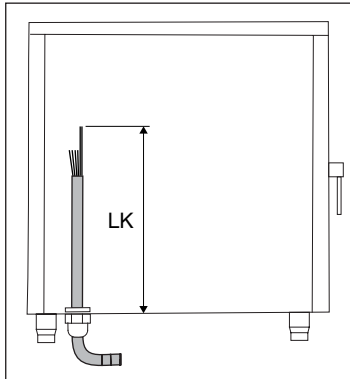
4. Push the rack trolley further onto the lifting bevel (k) into the unit.  
The rack trolley will be lifted up.

5. Push the trolley into the unit as far as it will go.

The wheels should no longer touch the floor when the unit is fully pushed in. The rack trolley is only supported by the carrying rollers.

# 4 Electricity

## 4.1 Power cable requirements



The unit is delivered as standard without a connection cable. A H07RN-F cable complying with EN standards or, respectively, with the locally applying provisions, must be used for connecting the unit. The table shows the length of cable required inside the unit.

Size	Cable length (LK) (cm)
615/620	100
115/120	125
215/220	50

## 4.2 Opening and closing the switch cover

### ⚠ HAZARD

#### Danger due to high voltage

There are voltage-carrying components behind the switch cover.

- Disconnect the unit from the power supply before opening the switch cover.
- Do not operate the unit when the switch cover is open.

1. Pull the hand shower out approx 20 cm.
2. **Screw in** the hexagonal socket screw (size 5) on the underside of the switch cover as far as it will go.
3. Press the switch cover lightly and lift approx 20 mm upwards.
4. Raise the switch cover approx 20 mm and lower it again
5. Open the switch cover fully.
6. Check that the seal around the switch cover fits properly and that it is not damaged.
7. Replace a damaged seal, if necessary.
8. Close the switch cover carefully.  
When doing so, ensure that cables are not trapped and that the cooling fan cannot be obstructed by any cables.
9. Press the switch cover lightly and lift approx 20 mm upwards.
10. Close the switch cover fully and lower it again pressing lightly.
11. Check that the seal around the switch cover fits properly.



12. If necessary, open the switch cover and correct the position of the seal.
13. Screw out the hexagonal socket screw (size 5) on the underside of the switch cover.

### 4.3 Description of the terminal strip

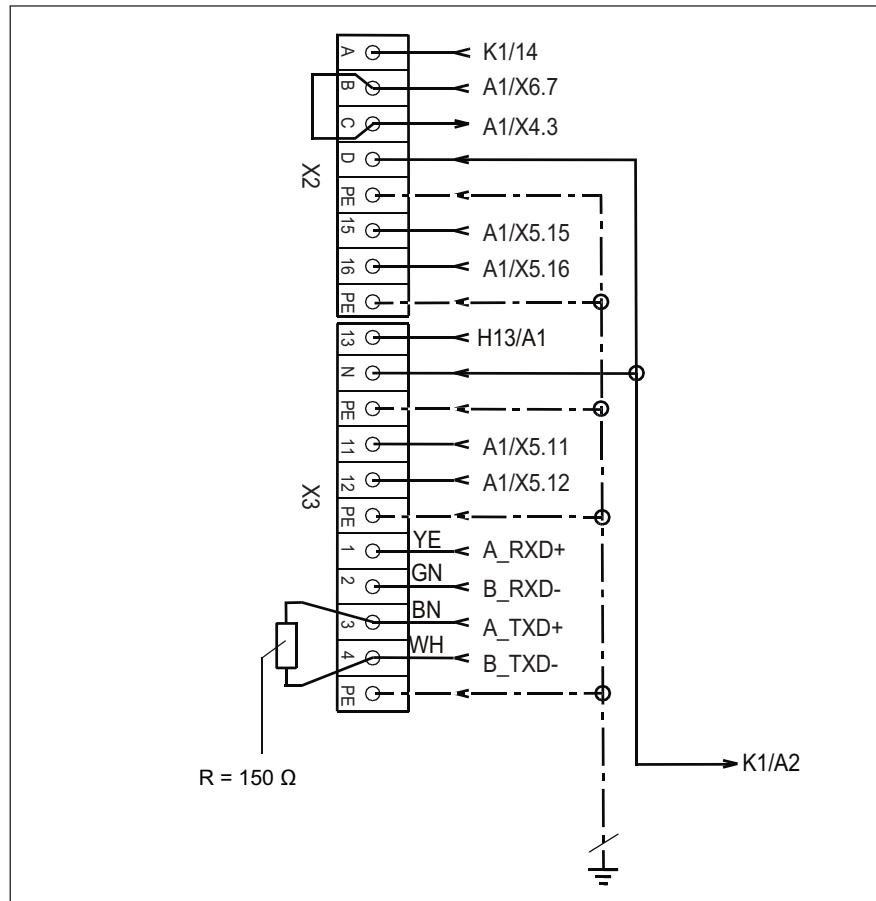


Figure 6: Terminal strip

Terminal strip	Terminal	Description
X2	A	Performance optimization system (LOA)
	B	
	C	
	D	
	PE	
	15	
	16	
	PE	
X3	13	External buzzer
	N	External signalling device activated via an auxiliary relay.
	PE	
	11	Extraction hood, potential-free
	12	
	PE	
	1	RS485/RS422 interface
	2	
	3	
	4	
PE		

## 4.4 Connecting the power supply

The unit may only be connected and serviced by an authorised electrical technician, according to the provisions of the German Association of Electrical Technicians, the power supply company and the information on the nameplate.

Have damaged power cables replaced by customer service to avoid risks of damage or injury.

The connection can be made either with a plug or by connecting directly.

### Isolator with direct connections

The power supply must be fitted with an all pole isolator (e.g. automatic cutout) with a minimum contact opening of 3 mm, so that the unit can be removed from the mains at any time.

### Plug connection

The plug socket must be adequately protected.

### Potential equalisation

The unit can be included in a potential equalisation system (grounding). The connection terminal is underneath the information plate.

### Phasing with the ClassicCombi version

Make sure that phasing is consistent with an electric rotary field rotating to the right. In the “Steaming” cooking mode, the fan must rotate to the right (see arrow on the motor housing). The cooking result will be impaired if the fan rotates in the wrong direction.

Ensure that all three voltage phases are always available during operation. Otherwise the fan will not operate and this may cause the unit's safety temperature limiter to be activated and components may be damaged.

Make sure that the circuit-breaker is adequately sized and that no further machines are connected. A 3-pole automatic cutout is recommended.

The procedure described here only applies for direct connections.

1. Prepare the connection cable (see [Chapter “Power cable requirements”, Page 24](#)).
2. Remove the left side panel.
3. Pass the connection cable through the strain relief screws into the unit.
4. Connect the connection cable with the connecting terminals according to the connection diagram.
5. Sizes 115 and 120: Secure the connection cable additionally with cable clips.
6. Secure the left side panel.

## 4.5 RS485/RS422 interface

SmartCombi units are equipped as standard with a four-pin RS485 interface; this is optional with ClassicCombi. The interface can be reduced to a two-pin RS422 interface.

1. Bridge the terminals to reduce the interface to a two-pole RS422 interface.
  - X3/1 to X3/3
  - X3/2 to X3/4
2. Use twisted wires (e. g. LiYY (TP) 2x2x0.5) for the connection.
3. Close the last unit with a 150 Ω terminating bus resistor.

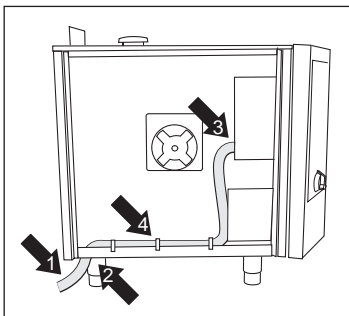
## 4.6 Connect performance optimization system (LOA)

SmartCombi units are equipped as standard for connecting to a performance optimization system (LOA); this is optional with ClassicCombi.

With this system, 230 V signals are passed on to an external performance optimization system. By means of this signal, the system can interrupt the heating cycle and stop heating.

The LOA connection is compatible to systems from SICOTRONIC GmbH.

1. Remove the left side panel.
2. Open the switch cover (see [Chapter “Opening and closing the switch cover”, Page 24](#)).
3. Pull the LOA connection cable (1) through the hole (2).
4. Lay the LOA connection cable as far as the connection box (3).
5. Connect the LOA connection cable to the connection box (3), (see [Chapter “Description of the terminal strip”, Page 25](#)).
6. Secure the LOA connection cable with cable binders (4).
7. Close the switch cover (see [Chapter “Opening and closing the switch cover”, Page 24](#)).



# 5 Water

## 5.1 Water supply

The unit is equipped with two water connections:

- a soft water connection for producing steam
- a hard water connection for cooling waste water, for operating the hand shower and for the automatic cleaning system “WaveClean”

For units that are equipped with the “WaveClean” automatic cleaning system, use of “WaveClean” is not possible without a hard water connection.

### NOTICE

Both water supplies must always be connected.

Hard and soft water connections can be made via a hose with a T-piece (accessory) in the event that only soft water is available on site (see [Chapter “Fitting the T-piece \(accessory\)”](#), Page 32).

### NOTICE

When using the stacking kit (accessory), the upper and lower units must be connected independently so that the other unit can still be used in the event that one unit fails.

1. Observe information about the hard water supply (see [Chapter “Information about the hard water supply”](#), Page 32).
2. Observe information about the soft water supply (see [Chapter “Information about the soft water supply”](#), Page 31).
3. Ensure that customer-supplied water hoses fulfil the requirements for the hard and soft water supplies (see [Chapter “Specifications, soft water”](#), Page 14 and [Chapter “Specifications, hard water”](#), Page 14).
4. Make sure that the provisions for the supply of drinking water are complied with (see [Chapter “Water”](#), Page 5).
5. Ensure that the water stop-cock is fitted with a backflow preventer.
6. Use ½" hoses with an R ¾" thread permitted for connecting drinking water for the connection.

### NOTICE

Use DVGW-tested hoses, or hoses conforming to the local regulations, according to IEC 61770.

7. When preparing the hoses, calculate the length to allow 0.8 m to be pulled out from the unit after connection, for later servicing.
8. Rinse out customer-supplied hoses for the hard and soft water connections.
9. Make sure that the filters fitted as standard to the unit's water inlets are present.

### CAUTION

#### Damages caused by incorrect water supply

→ Do not confuse the hard water and the soft water connections.

### NOTICE

The connections for hard and soft water are located on the floor of the unit on the left.

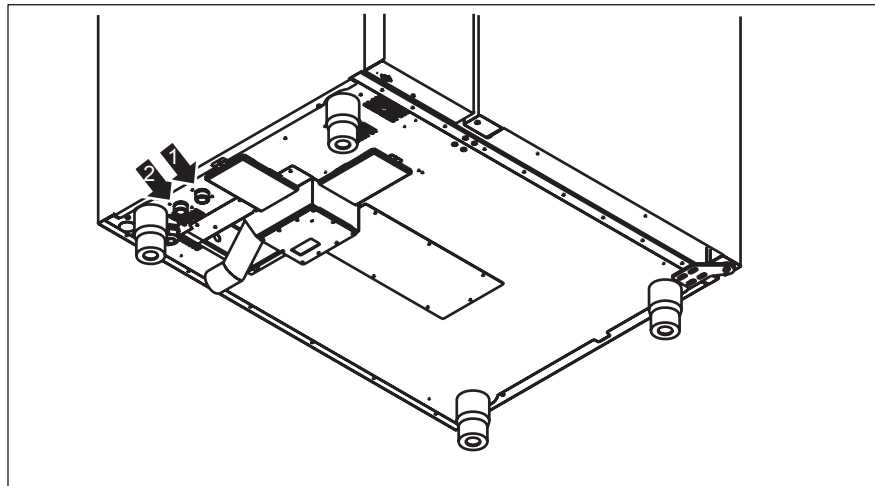


Figure 7: Water connections, tabletop units

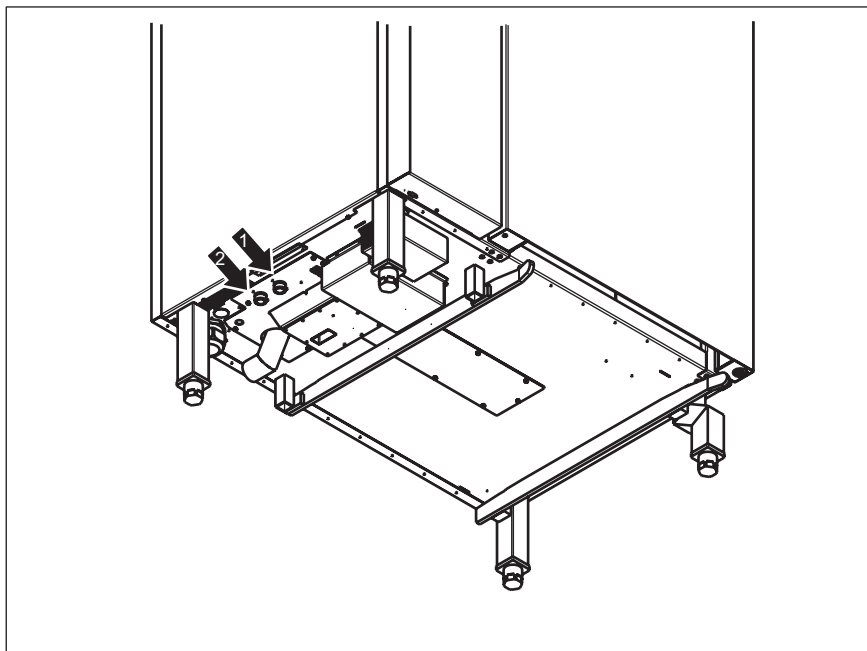


Figure 8: Water connections, floor standing units

10. Connect the hose for the hard water supply to the hard water connection (1).
11. Connect the hose for the soft water supply to the soft water connection (2).

### 5.1.1 Information about the soft water supply

**Cl/Fe content** If the Cl content is greater than 150 mg/l, Fe content greater than 0.1 mg/l or Cl<sub>2</sub> content greater than 0.1 mg/l, corrosion can occur in the cooking chamber. The Cl content can be reduced with an activated charcoal filter.

**Supply pressure** If the supply pressure is not within the given limits (see [Chapter “Specifications, soft water”, Page 14](#)), the cooking art “Steaming” will fail to produce any steam.

**Contamination of the water** If the water is heavily contaminated, a sedimentation filter (grit size 0.08 mm) must be installed upstream.

**Water hardness** Scale deposits may form if the total water hardness or carbonate hardness exceeds 5 °dH (0.89 mmol/l). For values smaller than this, the scale formation is correspondingly less. A total water hardness or carbonate hardness of 1 °dH is ideal. Certain water components (Na<sup>+</sup> ions and silicates) can cause the windows to become cloudy. This effect depends on the quality of the water and how the unit is used. Decarbonisation or full desalination systems can prevent the formation of scale deposits.

A water softening system should be installed upstream if the water is very hard.

Water softening systems based on electromagnetic fields do not provide protection against scale deposits with combisteamers.

Pipes from galvanized steel or other corrosive material may not be used downstream from water softening systems.

Systems with phosphate and silicate dosing may not be used. Deposits may form in the cooking chamber with such systems.

SmartCombi units can show the service intervals of a connected water softening system on the multi-function display. You will find further information in the operating instructions.

### 5.1.2 Information about the hard water supply

**Cooling waste steam** Cold water that has not been softened can be used for cooling waste steam.

Warm water leads to increased water consumption and should not be used.

The water temperature must not exceed 50 °C (122 °F).

**Automatic cleaning system “WaveClean”** Units that are equipped with the “WaveClean” automatic cleaning system must always be connected to a hard water and a soft water supply.

Otherwise, cleaning with “WaveClean” is not possible.

### 5.1.3 Fitting the T-piece (accessory)

Hard and soft water connections can be made via a hose with a T-piece (accessory) in the event that only soft water is available on site.



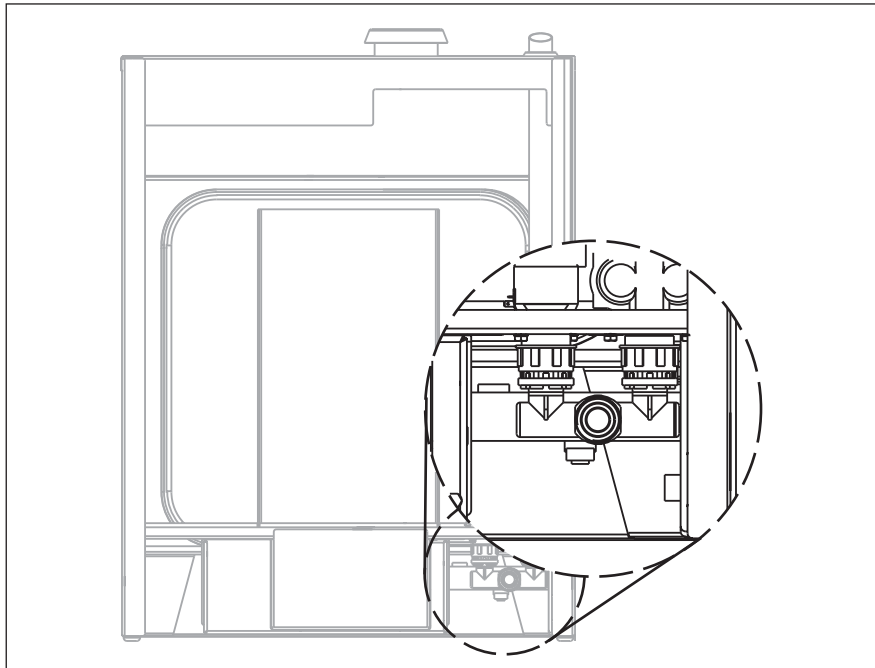


Figure 9: Position of the T-piece

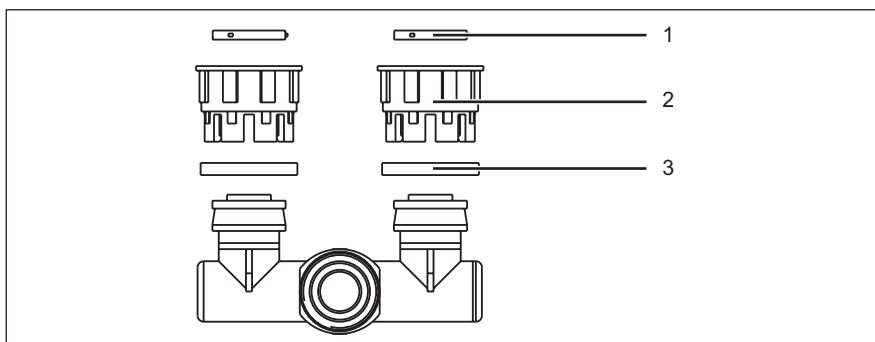


Figure 10: Parts of the T-piece

- 1 Sealing ring
- 2 Threaded connector
- 3 Metal ring

1. Check that both sealing rings (1) are lying flat in the threaded connectors (2).
2. Screw the threaded connectors (2) evenly onto the hard and soft water connections and tighten securely. Avoid cross-threading.

## CAUTION

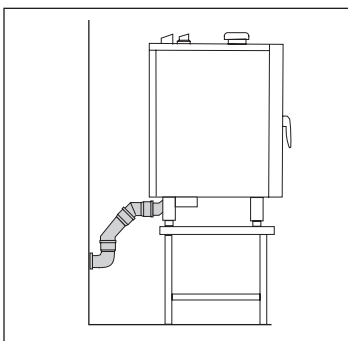
### Damage to the unit caused by water

→ Check that the metal rings are positioned correctly.

3. Check that both metal rings (3) are lying on the respective plastic sprocket in the threaded connector (2).  
If not, open the threaded connector (2) and repeat the process.

## 5.2 Waste water connection

### 5.2.1 Waste water connection for units with WaveClean



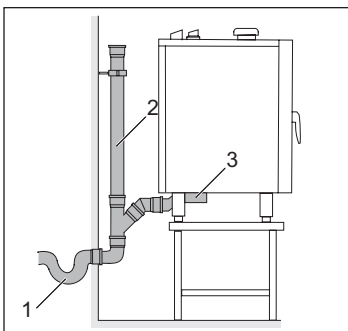
The unit is equipped with a siphon (odour trap) with an overflow and can be connected to the waste water system without taking additional action. Customer-supplied siphons should be avoided.

If the waste water outlet is connected to a customer-supplied siphon (1), counter pressure may cause the siphon in the unit (3) to overflow.

Therefore, the waste water pipe must be fitted with an aerator in this case.

A PA-I 1818 DIN 19560 HT pipe is recommended for the connection to the waste water system.

The diameter of the waste water pipe must not be reduced.



## CAUTION

### Damage caused by an incorrect water connection

→ Do not operate the unit without an aerator in the waste water pipe.

1. Make sure that customer-supplied pipes meet the requirements for the waste water connection (see [Chapter "Specifications, waste water", Page 14](#)).
2. Observe the provisions for the disposal of waste water (see [Chapter "Waste water", Page 5](#)).
3. Connect the unit to the waste water system using a heat-proof pipe (DN 50).
4. With customer-supplied siphons: connect aerator to a waste water pipe.
5. With customer-supplied siphons: pour 2 quarts (2 l) of drinking water into the siphon.

This ensures the siphon will work properly.

## 5.2.2 Waste water connection for units without WaveClean

### CAUTION

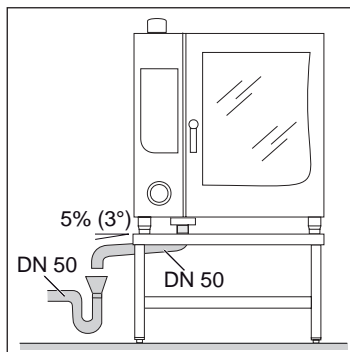
#### Risk of damage by waste steam

→ To protect the unit from damage caused by waste steam, the funnel must not be positioned below the unit.

### NOTICE

Units without WaveClean are supplied without a built-in overflow.

Therefore, they may only be connected to the waste water system via an open drain in a funnel.



1. Make sure that customer-supplied pipes meet the requirements for the waste water connection (see [Chapter “Specifications, waste water”, Page 14](#)).
2. Observe the provisions for the disposal of waste water (see [Chapter “Waste water”, Page 5](#)).
3. Connect the unit to the waste water system using a heat-proof pipe (DN 50) and a funnel.

## 6 Air outlet connection

Waste steam and vapours are cooled by the built-in cooling system and extracted via the drain; an air extraction system is therefore not essential.

Installation under an extraction hood is recommended.

### 6.1 Installation under an extraction hood

→ Observe the regulations for room ventilation systems (see [Chapter "Room air", Page 6](#)).

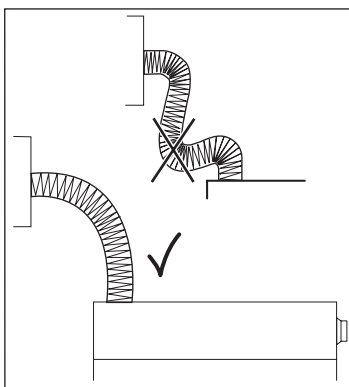
### 6.2 Connection to an air outlet duct

#### Requirements Connection with a pipe

- Do not use galvanized pipes.
- Heat-proof and non-corrosive pipe (e.g. PA-I 1818 DIN 19560 HT pipe)

#### Connection with a hose

- Do not use aluminium tubes because tube corrosion might occur.
- Heat-proof to at least 180 °C (356 °F)
- Hose diameter  
With tabletop units: 53 mm  
With floor standing units: 73 mm
- Hose length max. 2.5 m



The end of the hose must not be connected directly to an air-outlet duct (e.g. extraction hood). Counter-pressure will cause steam to be drawn off from the cooking chamber; this will impair the cooking results. The end of the hose should end below (outside) the air-outlet duct.

1. Connect the unit to an air-outlet duct using a pipe or a hose.
2. Take care not to create a "water pocket" (sagging when laid horizontally), and that the cross-section is not restricted.









Henny Penny Corporation  
P.O. Box 60  
Eaton, OH 45320

1-937-456-8400  
1-937-456-8402 Fax

Toll free in USA  
1-800-417-8417  
1-800-417-8434 Fax

[www.hennypenny.com](http://www.hennypenny.com)