

MIWE aero e+, econo
Unit version 3.0

LEGAL NOTICE

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1. Responsibility of the owner-operator

Owner-operator

The owner-operator is the person who operates the product themselves for commercial or industrial purposes or makes the product available to a third party for use or application and bears the legal product responsibility for the protection of users or third parties during operation.



NOTE!

The owner-operator receives the following documents along with the "Essential Preparations" instructions:

- Confirmation of order
- Technical dimension and data sheet. These documents provide technical data and dimensions.

Essential preparations provide important information that will help to ensure correct installation and commissioning. Please read them carefully before starting any work.

Each section is marked for the relevant teams. This facilitates provision of the necessary information to each specialist firm.

1.1. About this documentation

It is important that you observe all safety information and handling instructions to ensure safety on the job. The applicable local accident prevention and general safety regulations for the area of use must also be observed.

Please read the documentation carefully before beginning any work. If passing on the unit to third parties, also provide them with the documentation. The figures/illustrations contained in the documentation are provided for explanatory purposes only and may in the interests of clarity not necessarily be to scale. They may vary slightly from the actual version supplied.

1.2. Explanation of symbols

1.2.1. Warnings

Warnings are marked in this documentation by symbols.

The warnings are introduced by signal words which reflect the level of potential danger. You must observe the warnings and act with all due care in order to avoid accidents, injury and damage.



DANGER!

Indicates serious hazards which could lead to death or serious injury if not avoided. This symbol is only used for serious dangers.



WARNING!

Indicates moderate risk. Disregarding the safety instructions can lead to serious injury or death. This symbol is not used for risk of mere damage to property.



CAUTION!

Indicates dangers which pose only a minor risk of physical injury. This symbol is only used for risk to property.

1.2.2. Special hazards

The following symbols are used in conjunction with the safety information to indicate special hazards:



RISK OF ELECTROCUTION!

Indicates safety information regarding electric current or voltage. Failure to attend to this information can lead to serious injury or death.

Work may only be carried out by specially qualified personnel. National and regional regulations in this area must be adhered to.



HEAVY LOADS CAN CAUSE INJURY!

Indicates safety instructions for handling heavy loads. Failure to attend to this information can lead to serious injury or death.



CRUSH HAZARD!

Indicates safety instructions for handling moving components. Failure to attend to this information can lead to serious injury or death.



1.2.3. Notes



NOTE!

Highlights useful tips, suggestions and information for ensuring efficient and smooth operation.



LEGAL NOTICE

Indicates information on statutory guidelines and standards and legally binding agreements between manufacturer and owner-operator.



SERVICE INFORMATION

Indicates information on cleaning, care, maintenance, lubrication and servicing.



PROCEDURE

Sets out procedures to be followed by operating and service personnel.

2. Transport, packaging and storage



NOTE!

Installation and commissioning by:

- MIWE service
- or
- An authorised partner of MIWE.

However, owner-operator personnel may handle packing units in the course of installation and subsequent use. In such cases, the following information must be observed.

2.1. Safety information



SAFETY REGULATIONS

National and regional safety regulations for transport must be adhered to.



HEAVY LOADS CAN CAUSE INJURY!

When loads are lifted, parts can fall or swing out of control and cause death.

- Never step under suspended loads.
- Use the specified attachment points.
- Do not attach lifting gear to protruding parts of the unit or attached components.
- Always use approved lifting tools and gear with a sufficient load capacity. Always ensure lifting gear is securely attached and correctly positioned.
- Only use intact ropes and slings.
- Do not place ropes or straps over sharp edges or corners.
- Do not knot or twist ropes or straps.



RISK OF CRUSHING FROM SLIDING UNIT!

People can get caught or crushed between the unit and site fittings and suffer serious injuries.

- Wear the prescribed protective clothing for all work.
- Keep a safe distance from danger zones.
- Engage the castor locking brakes if available.



WARNING: INCORRECT TRANSPORT CAN CAUSE DAMAGE!

Considerable material damage can result from incorrect transport.

- Always take great care when unloading packing units and transporting them on site, and always observe the symbols on the packaging.
- Only ever use the designated attachment points.

2.2. Transport

2.2.1. Transport inspection

Check the contents of the delivery for completeness and for damage caused in transit immediately upon receipt.

If there are visible signs of damage from transport:

- Do not accept delivery, or only conditionally accept delivery.
- Make a note of the extent of the damage in the transport documents or the haulier's delivery note.
- Initiate a complaint.

§

DAMAGES

Report all defects within 2 days of delivery of the goods. Claims for damages can only be accepted if submitted by this deadline.

2.2.2. Packing units and pallets loaded with packing units

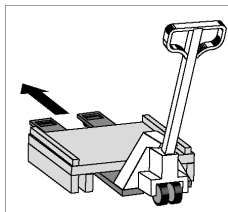
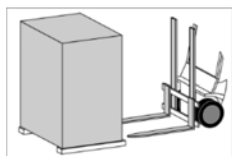
Packing units and pallets loaded with packing units may be transported with a forklift truck or a pallet truck, provided the following conditions are met:

- The forklift truck or pallet truck must be designed to bear the weight of the transport units.
- The driver must be in possession of the required licence for operating the forklift truck.



LIF THERE

Lifting the unit incorrectly will cause damage and can pose significant hazards. Only lift the unit at the marked points.



1. Drive the fork lift truck or pallet truck under the pallet.
Drive the forks under the packing unit until they come out the other side.

2. Ensure that the packing unit cannot tip over if it is top-heavy. If necessary, secure for transport.

As required:

3. Place extensions of sufficient length and width (e.g. wood or metal) between the forks and packing unit in order to spread the weight to the casing.

2.3. Packaging

2.3.1. Packaging information

Individual packing units are packed to meet the requirements of the expected transport conditions. Only environmentally friendly materials are used for packaging.

Unless any special agreements have been made in relation to the handling of the packaging, sort the materials and put them to further use or send them to be recycled.

2.3.2. Symbols on the packaging



KEEP DRY

Keep the packing units dry and protect from moisture.



FRAGILE

Indicates packing units with fragile or delicate contents. Treat packing units with care; do not drop or subject to shocks.



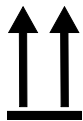
WEIGHT, ATTACHED LOAD

Indicates the weight of packing units. Handle labelled packing units according to their weight.



TOP-HEAVY

The packing unit is top-heavy and is not sufficiently stable. Take particular care during transport and secure packing unit separately if necessary.



THIS WAY UP

The arrows indicate the top of the packing unit. They must always point upwards, otherwise there is a risk of damage to the contents.



CENTRE OF GRAVITY

Indicates packing units' centre of gravity. Lift and transport in accordance with the centre of gravity.



FASTEN HERE

Only attach lifting gear (chains, slings) at the points marked with this symbol.

2.4. Storage

Store packing units in the following conditions:

- Do not store outdoors.
- Store in a dry and dust-free place.
- Do not expose to aggressive substances.
- Keep out of sunlight.
- Avoid mechanical shocks.
- Storage temperature: +3°C to +50°C.
- Relative humidity: max. 60%.
- If the unit is in storage for longer than 3 months, the general condition of all the parts and of the packaging must be checked regularly.



NOTE!

In certain cases, there may be storage instructions included on the packing units which extend beyond the requirements specified here. All such instructions must be complied with.

3. Building work

3.1. Safety information



LAWS AND REGULATIONS

The assembly and installation of ovens is subject to national and regional regulations and statutory requirements. These must be observed by the principal.

Installation and commissioning by:

- MIWE service
- or
- An authorised partner of MIWE.

The principal

The principle is the party who has commissioned the unit.

The principal is responsible for obtaining the building and planning permits.



NOTE!

The principal has a duty to observe the following national and regional laws and regulations:

- Hygiene and health regulations
- Accident prevention regulations

The contractor

The contractor has the specialist training, knowledge and experience to carry out all construction work and services.

For Germany:

- Installation of foundations
- Flooring
- Building access points
- Walls / breaking through walls
- Supply and discharge lines (electricity, water, waste water, gas or oil)

The contractor has been trained specially for the specific field and is familiar with the relevant standards and regulations.

**NOTE!**

The contractor has a duty to observe the following national and regional laws and regulations:

- Building regulations
- Hygiene and health regulations
- Accident prevention regulations

**NOTE!**

The person who plans, monitors and approves on-site preparations must be officially authorised to do so [*Bauvorlageberechtigt*] pursuant to German regulations.

Authorised persons include architects, civil engineers, constructional engineers and master tradesmen [*Handwerksmeister*].

The above person(s) must be familiar with/able to:

- Statutory building regulations.
- Calculating the load-bearing capacity of the floor/foundation.
- Assessing the structural condition

3.2. Access to the point of installation

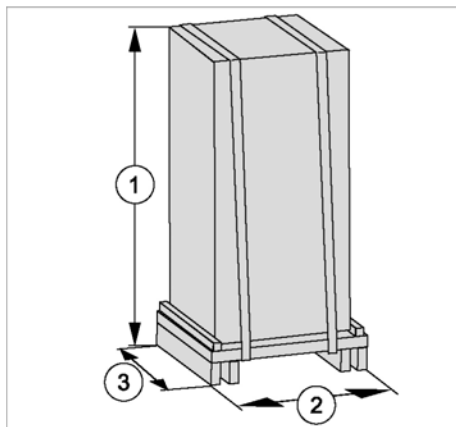
The following requirements must be met for access to the installation/assembly site:

- Sufficient clearance (clear width and height)
- Sufficient space and unloading space for the required lifting gear
- Sufficient clearance for lifting gear movement
- Level access (e.g. no stairs, steps or sloping ramps)
- Access for the transport vehicles
- Flooring/ground over which the specified lifting and installation gear can be driven
- Sufficient hoist load capacity
- Sufficient floor and ceiling load-bearing capacity



NOTE!

The detailed technical data is sent to the owner-operator together with the order confirmation. Please contact MIWE in the event of deviations from requirements.



- | | | |
|---|------------------------------------|------------|
| ① | Maximum transport height on pallet | c. 2250 mm |
| ② | Width | c. 1100 mm |
| ③ | Depth | c. 1600 mm |



NOTE!

The height calculations do not cover the dimensions of the transport equipment required.

3.3. Site conditions

Ensure the installation area is level so that the unit can be installed in accordance with national and regional planning and construction regulations.



NOTE!

The detailed technical data is sent to the owner-operator together with the order confirmation.

3.3.1. General information

When selecting the site, please make sure that:

- Unauthorised persons have no access to the unit.
- Supply and discharge lines of the specified dimensions can be laid.

3.3.2. Load on floor/foundation

The floor/foundation must be designed to bear the weight of the oven.



CAUTION: OVERLOADING CAUSES DAMAGE!

Too heavy a load can damage the floor/foundation.

- Check the load-bearing capacity of the floor/foundation.
- Prepare floor/foundation in accordance with load-bearing capacity.



NOTE!

Remember to allow for the weight of the dough and baking trays.

3.3.3. Ventilation

When selecting the site, please make sure that:

- Unit vents are not obstructed by equipment or objects.
- There is additional ventilation, for example fans, for fitted units.
- The unit and assembly/installation and work area are sufficiently ventilated and well lit.
- The ambient temperature at the unit's place of installation (in particular back wall of the oven, additional housing, etc.) does not exceed 40°C or 60% relative humidity.
- No liquids or other foreign substances can enter the unit through the vents.

4. Fire safety

4.1. Safety information



INSUFFICIENT FIRE SAFETY POSES A FIRE HAZARD!

Insufficient fire safety measures can result in serious injury and damage.
When selecting the site, please make sure that:

- No damage, in particular due to exposure to heat, could result from the installation or operation of the unit.
- Objects and equipment in the vicinity of the unit are made of non-flammable material or insulated with non-flammable material.
- The site meets the local accident prevention and fire regulations.

4.2. Sensors in the oven area



CAUTION: SAFETY SENSORS CAN BE TRIGGERED ACCIDENTALLY AND CAUSE DAMAGE!

Sensors of all types of safety device can be triggered accidentally.

- No sensors of any type should be fitted in the safety zone of the oven.
- Please ask the sensor manufacturer for the required safety clearances.
- During baking, check whether the MIWE oven triggers false sensor alarms.
- If necessary, move the sensors.

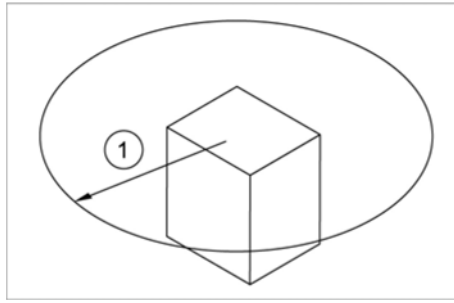


CAUTION: SPRINKLER SYSTEMS CAN CAUSE DAMAGE!

Air temperatures of > 60°C at the ceiling above ovens can activate the sprinkler systems and cause damage.

- No sensors of sprinkler systems of any type should be fitted in the safety zone of the oven.
- Check the ambient temperature at the sprinkler head after commissioning and during baking.

If required, contact the competent safety officer.



① Safety zone radius at least 2500 mm



NOTE!

Following consultation with the competent safety officer, sprinkler heads of $T = 92^{\circ}\text{C}$ may be acceptable.
The use of sprinkler heads is the responsibility of the owner-operator.

4.3. Escape routes/emergency exits



NOTE!

Provide escape routes/emergency exits in accordance with national and regional regulations.

Escape routes/emergency exits must be suitable for the actual hazards:

- Consider maximum length of escape route.
- Consider location and size of room.
- Mark clearly and permanently in clearly visible places.
- Make sure the sign can be read from the required distance.
- Indicate the direction of the escape route/emergency exit.
- Keep clear at absolutely all times without exception.

4.4. Fire extinguishers

Fire extinguishers must be provided in the operating areas in accordance with national and regional regulations.

The type of fire extinguisher depends on the fire hazard for the:

- operating equipment
- operating materials



NOTE!

For further information, please contact the fire safety officer.

5. Electrical system

5.1. Safety information



RISK OF ELECTROCUTION!

Contact with live parts can kill. Damage to the insulation or individual components can cause death.

- Always have work on electrical equipment carried out by qualified electricians.
- Before any work, switch off the power supply to the unit and make sure it cannot be switched back on, and check that no parts are live.
- Protect live parts from moisture.
Moisture can cause electric shocks and short-circuiting.
- Have damaged insulation repaired.
- Never bypass or disable safety devices such as fuses or safety thermostats.
- Observe the correct amperage and characteristics when replacing fuses.
- Lay the connecting power cable so that it is not kinked or pinched.



RISK OF FALLING!

A fall from a unit can cause serious injury.

In accordance with health and safety regulations, anyone working at a height of 1.50 m or more must use the appropriate, approved equipment.

- Sturdy ladder
- Scaffolding
- Lifting platform

The owner-operator must provide this equipment and comply with official industry association health and safety regulations.

Qualified electrician

A qualified electrician has the technical training, expertise and experience necessary to assess and carry out all electrical work assigned and to recognise potential hazards.

The above person(s) must be familiar with/able to:

- Install low-voltage systems.
- Operate electrical systems.
- Machine safety.
- Electrical safety devices.
- Human-machine interfaces.
- Install stationary electrical facilities.
- Lay and connect electrical lines and connections.
- Fit distributors, residual current devices, switches, pushbuttons and sockets.
- Measure the effectiveness of electrical safety devices.

**IMPORTANT NOTE ON ELECTRICAL SYSTEMS IN GERMANY**

The qualified electrician must be registered in the network operator's register of installation engineers [*Installateurverzeichnis*]. Qualified electricians receive training on the latest standards, legislation and technical developments at least once a year.

Qualified electricians have a duty to observe the following national and regional laws and regulations:

- Accident prevention regulations - for Germany, DGUV Vorschrift 3 (previously BGV A3)

5.2. Staff safety

The units are protection class 1 and are therefore fitted with a protective earth.



WARNING: STAFF SAFETY RISK!

Failing to ensure sufficient staff safety measures can lead to injury.

Model with electrical plug and socket connection < 20 A

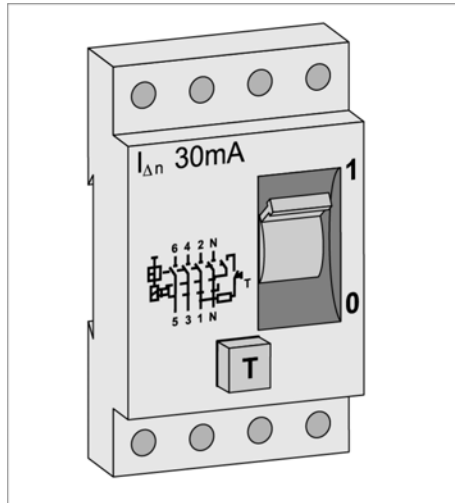
The owner-operator must fit a 30 mA residual current device.

Model with fixed electrical connection or electrical plug and socket connection > 20 A

We recommend that the owner-operator fit a 30 mA residual current device.

For the safe operation of MIWE ovens, we recommend fitting the following residual current devices:

- 30 mA RCD (Residual Current Device) Type A



The following standards apply to the installation of residual current devices:

- Germany
DIN VDE 0100-100
- European Economic Area
DIN IEC 60364-5-53 (VDE 0100-543)
or
IEC 64/1775/CD

Installation information

- The detailed technical data is sent to the owner-operator together with the order confirmation.
- Any additional requirements of the competent network operator must be complied with.
- Fit the distribution box with RCD and ensure that it is accessible to personnel at all times.
- The main supply line to the distribution box must be suitable for the power ratings required.
- Install the master switch (all-pole circuit breaker) in the supply line to the oven and keep it accessible to personnel at all times.
- Keep and archive training records for trained staff.
- Check electrical system and log inspection.

**NOTE!**

For values for connecting the unit to special voltages, please see the 'Special voltages' supplementary sheet.

This is sent to the owner-operator together with the order confirmation.

5.3. Electrical connections

The owner-operator is responsible for preparing the electrical connection.

**WARNING!**

Electrical connections are safety devices and must be freely accessible for emergency situations.

**NOTE!**

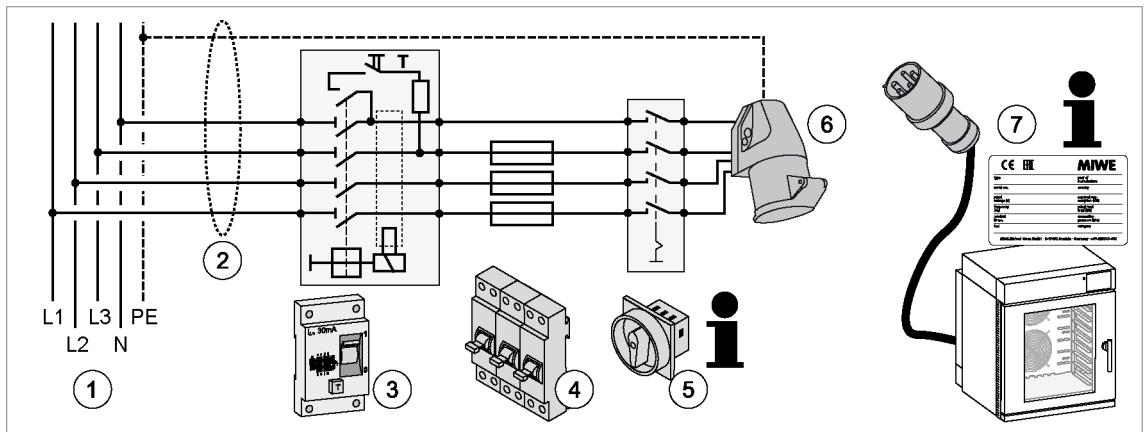
The detailed technical data is sent to the owner-operator together with the order confirmation.

5.3.1. Single-circuit system

The different models can be connected to the power supply in different ways:

- electrical plug and socket connection
- or
- wiring in distribution box by owner-operator

Electrical plug and socket connection



Fitted/layout by owner-operator

- ① Power supply
- ② Main supply line to the distribution box
- ③ RCD (Residual Current Device)
- ④ Fuses
- ⑤ All-pole circuit breaker master switch



NOTE!

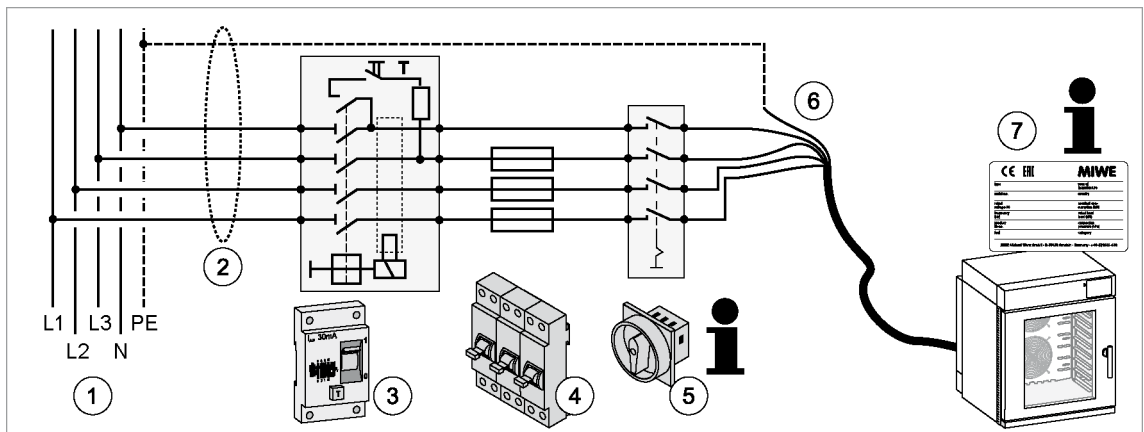
The all-pole circuit breaker master switch is only required if the unit is hardwired. If an electrical plug and socket connection with earthing contact is used, this master switch is not absolutely essential.

- ⑥ CEE socket, IP44
16A or 32A depending on oven power

Fitted/layout by MIWE service

- ⑦ Unit with rating plate.
Rating plate provides exact details of the required power supply.

Wiring in distribution box



Fitted/layout by owner-operator

- ① Power supply
- ② Main supply line to the distribution box
- ③ RCD (Residual Current Device)
- ④ Fuses
- ⑤ All-pole circuit breaker master switch



NOTE!

The all-pole circuit breaker master switch is only required if the unit is hardwired. If an electrical plug and socket connection with earthing contact is used, this master switch is not absolutely essential.

- ⑥ Wiring in distribution box by owner-operator

Fitted/layout by MIWE service

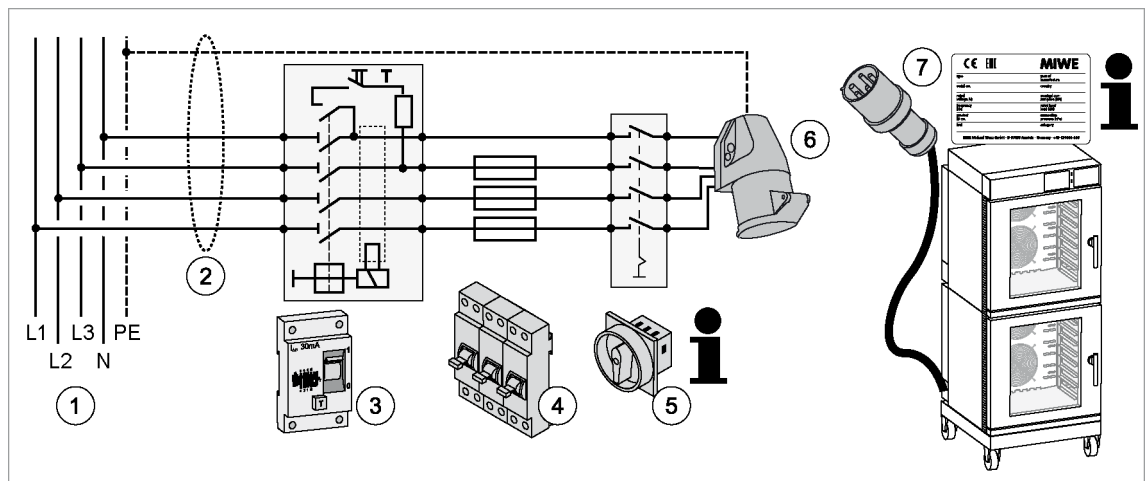
- ⑦ Unit with rating plate.
Rating plate provides exact details of the required power supply.

5.3.2. Dual-circuit system

The different models can be connected to the power supply in different ways:

- electrical plug and socket connection
- or
- wiring in distribution box by owner-operator
- For further information, please see 'Single-circuit system'

Electrical plug and socket connection – one supply line



Fitted/layout by owner-operator

- ① Power supply
- ② Main supply line to the distribution box
- ③ RCD (Residual Current Device)
- ④ Fuses
- ⑤ All-pole circuit breaker master switch



NOTE!

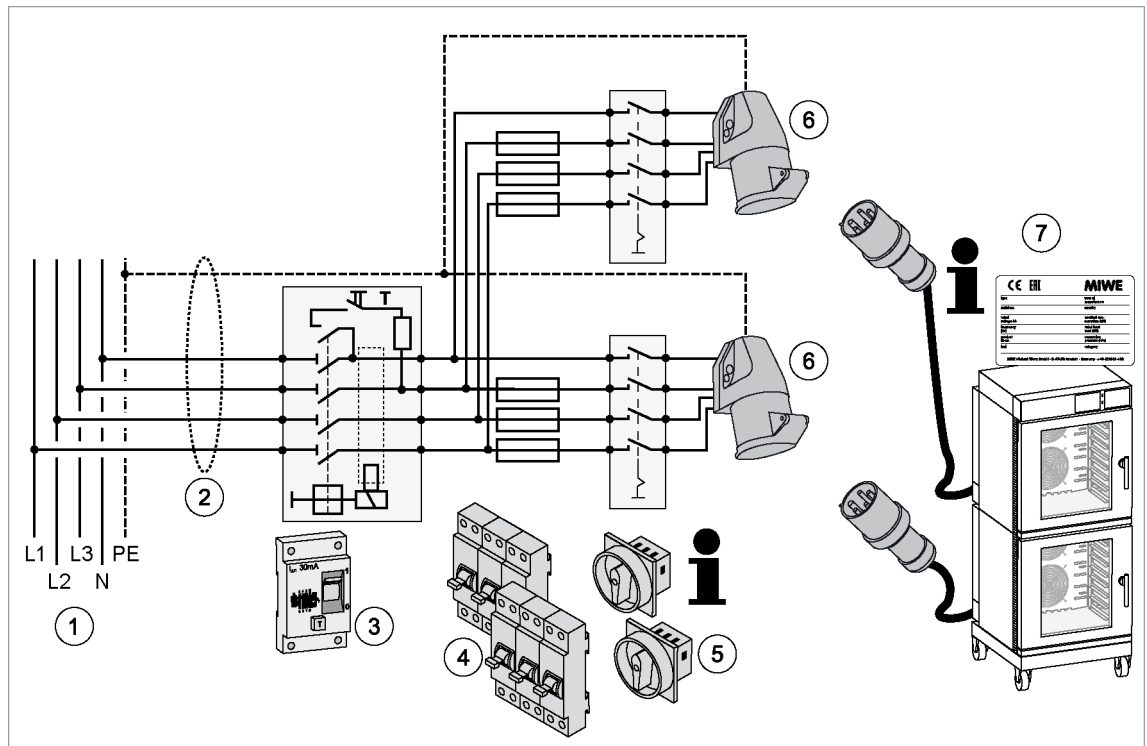
The all-pole circuit breaker master switch is only required if the unit is hardwired. If an electrical plug and socket connection with earthing contact is used, this master switch is not absolutely essential.

- ⑥ CEE socket, IP44
16A, 32A or 63A depending on oven power

Fitted/layout by MIWE service

- ⑦ Unit with rating plate.
Rating plate provides exact details of the required power supply.

Electrical plug and socket connection – two supply lines



Fitted/layout by owner-operator

- ① Power supply
- ② Main supply line to the distribution box
- ③ RCD (Residual Current Device)
- ④ Fuses
- ⑤ All-pole circuit breaker master switch



NOTE!

The all-pole circuit breaker master switch is only required if the unit is hardwired. If an electrical plug and socket connection with earthing contact is used, this master switch is not absolutely essential.

- ⑥ CEE socket, IP44
16A or 32A depending on oven power

Fitted/layout by MIWE service

- ⑦ Unit with rating plate.
Rating plate provides exact details of the required power supply.

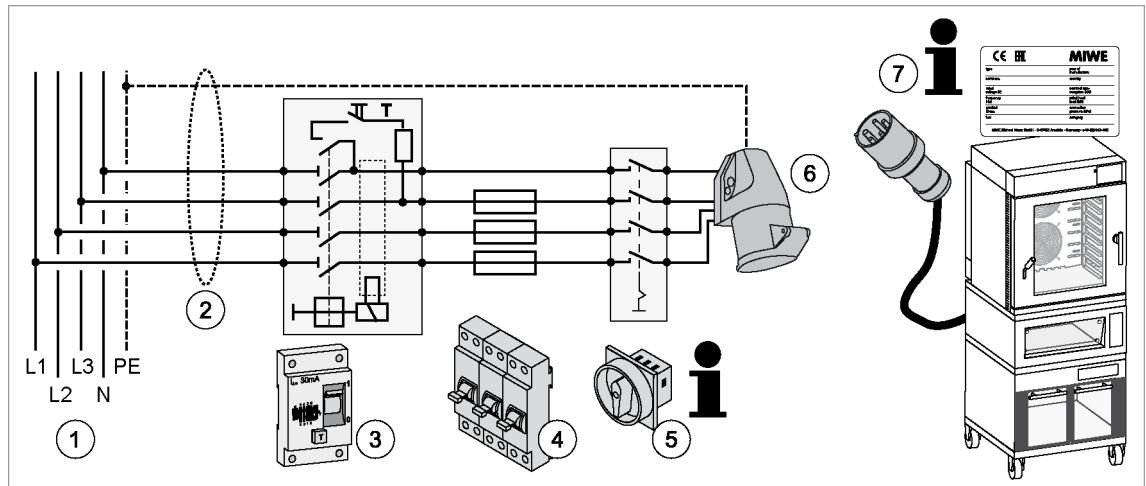
5.3.3. MIWE backcombi

The different models can be connected to the power supply in different ways:

- electrical plug and socket connection
- or
- wiring in distribution box by owner-operator

For further information, please see 'Single-circuit system'

Electrical plug and socket connection – one supply line



Fitted/layout by owner-operator

- ① Power supply
- ② Main supply line to the distribution box
- ③ RCD (Residual Current Device)
- ④ Fuses
- ⑤ All-pole circuit breaker master switch



NOTE!

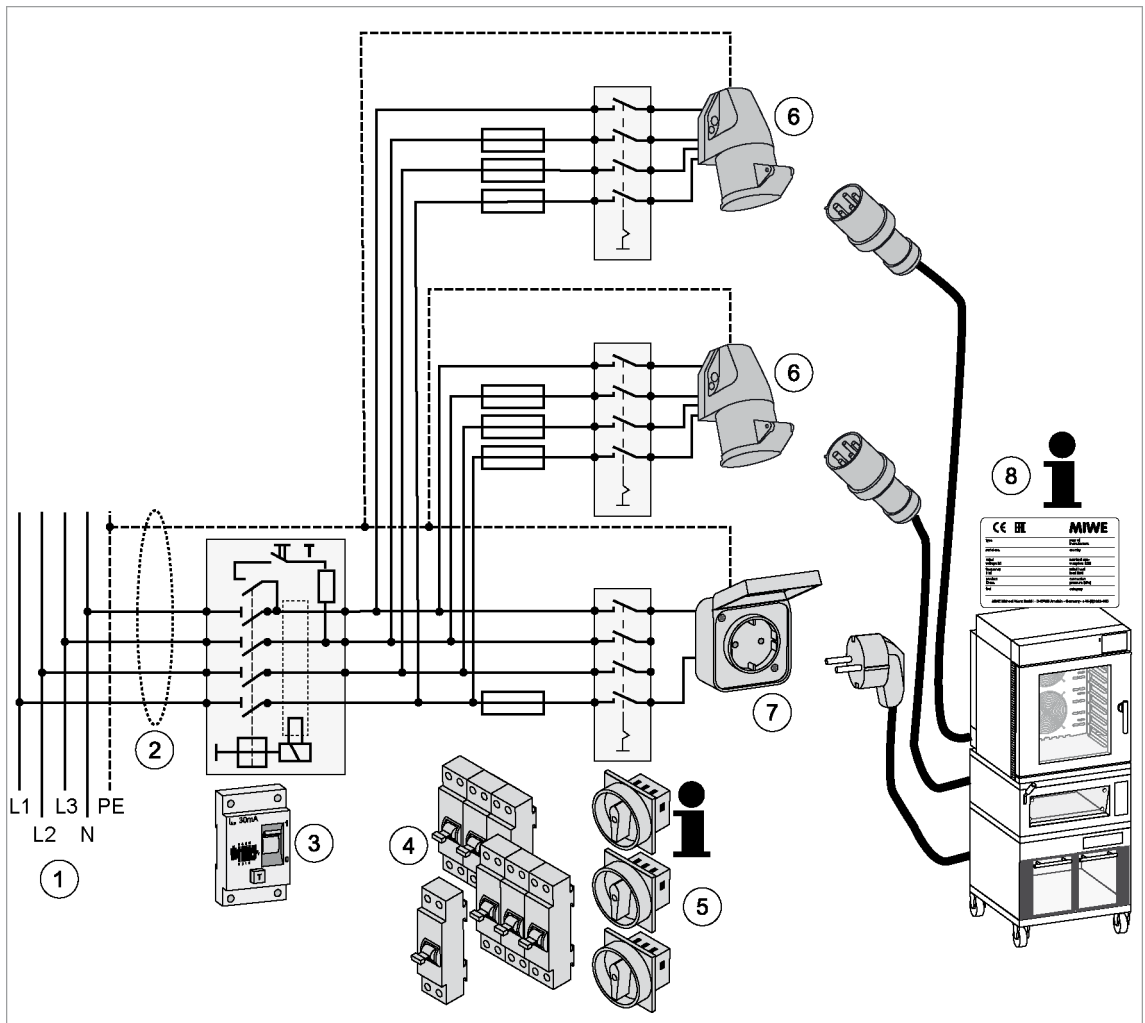
The all-pole circuit breaker master switch is only required if the unit is hardwired. If an electrical plug and socket connection with earthing contact is used, this master switch is not absolutely essential.

- ⑥ CEE socket, IP44
16A, 32A or 63A depending on oven power

Fitted/layout by MIWE service

- ⑦ Unit with rating plate.
Rating plate provides exact details of the required power supply.

Electrical plug and socket connection – three supply lines



Fitted/layout by owner-operator

- ① Power supply
- ② Main supply line to the distribution box
- ③ RCD (Residual Current Device)
- ④ Fuses
- ⑤ All-pole circuit breaker master switch



NOTE!

The all-pole circuit breaker master switch is only required if the unit is hardwired. If an electrical plug and socket connection with earthing contact is used, this master switch is not absolutely essential.

- ⑥ CEE socket, IP44
16A or 32A depending on oven power
- ⑦ Electrical socket with earthing contact, IP44

Fitted/layout by MIWE service

- ⑧ Unit with rating plate.
Rating plate provides exact details of the required power supply.

5.4. Equipotential bonding

MIWE ovens have a bolt on the back of the unit to connect the equipotential bonding conductor.



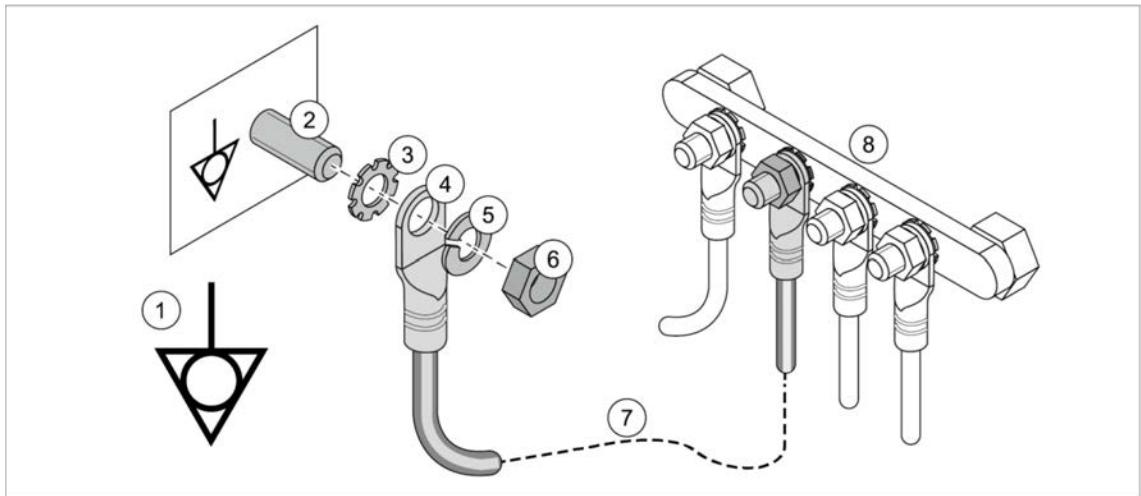
NOTE!

Correctly connected equipotential bonding significantly reduces faults in data transfer over networks.



WARNING!

Before connecting the MIWE oven to a data network, connect the unit to the building's equipotential bonding point.



Fitted/layout by MIWE

- ① Equipotential bonding labelling
- ② Equipotential bonding bolt, M6 x 20 mm min.

Fitted/layout by owner-operator

- ③ Toothed washer
 - ④ Cable eye with equipotential bonding conductor
 - ⑤ Spring washer; prevents the connection from coming loose
 - ⑥ Retaining nut
 - ⑦ Insulated copper cable with a min. diameter of 6 mm²
 - ⑧ Main earthing bar of the building
- The earth connection for the building must comply with DIN VDE 0100-540 in Germany. Corresponding regulations apply in other countries.

5.5. Network connection (optional)



WARNING: ADDITIONAL INSPECTION OF NETWORK REQUIRED!

Additional tests/inspections are required if external lines are connected.

- The unit network connection must be inside the building, and the unit may only be connected to an internal, secure network (LAN).



CAUTION: INSUFFICIENT EQUIPOTENTIAL BONDING CAN CAUSE DAMAGE!

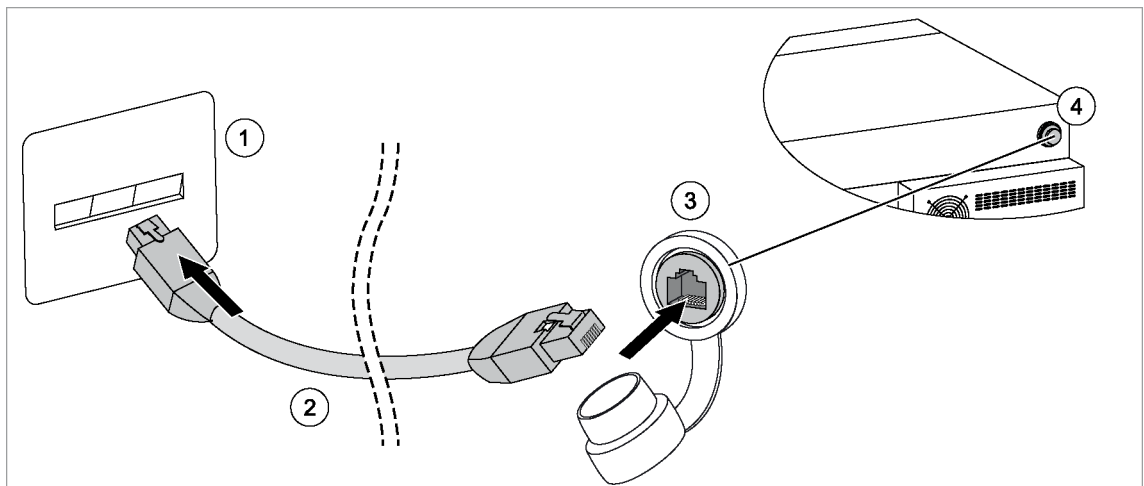
Large differences in potential can damage network devices.

- The building must have an equipotential bonding connection. In Germany, this connection must comply with DIN VDE 0100. Corresponding standards apply in other countries.



NOTE!

A unique IP address is required for each network connection.



Fitted/layout by owner-operator

- ① RJ-45 network connection
- ② Ethernet cable

Fitted/layout by MIWE service

- ③ RJ-45 network interface
- ④ Back of oven

6. Water / wastewater

6.1. Safety information



CAUTION: INCORRECT INSTALLATION CAN CAUSE DAMAGE!

A faulty water / wastewater system can damage the unit and adjacent components. It can also lead to problems in baking.

- All work on the water / wastewater system must be carried out by a qualified plumber.



RISK OF FALLING!

A fall from a unit can cause serious injury.

In accordance with health and safety regulations, anyone working at a height of 1.50 m or more must use the appropriate, approved equipment.

- Sturdy ladder
- Scaffolding
- Lifting platform

The owner-operator must provide this equipment and comply with official industry association health and safety regulations.

Qualified plumber

A qualified plumber has the technical training, expertise and experience necessary to carry out the following work:

- Install plumbing systems in accordance with plans.
- Service and repair units.

Qualified plumbers have been trained specially for the field in which they work. They have qualifications proving that they are familiar with current safety regulations and have the necessary specialist expertise.

The above person(s) must be familiar with/able to:

- Install and remove pipes and components in supply and disposal systems.
- Prepare sites for laying pipes; this includes breaking through walls and ceilings.
- Install, connect and set water treatment systems.
- Commission supply facilities and systems and hand them over to customers, and instruct customers in their operation.
- Service and repair supply facilities.
- Clean unit/facility components and piping.
- Adjust facilities and draw up maintenance logs.
- Supply and transport components, materials and tools and set up the work station.
- Check and evaluate finished work and implement quality assurance measures.
- Technical standards for drinking water systems.
- Technical standards for wastewater systems.

6.2. Water feed line



CAUTION: HOT WATER CAN CAUSE DAMAGE!

- Only connect cold, potable water.

USING THE WRONG HOSES CAN DAMAGE THE UNIT!

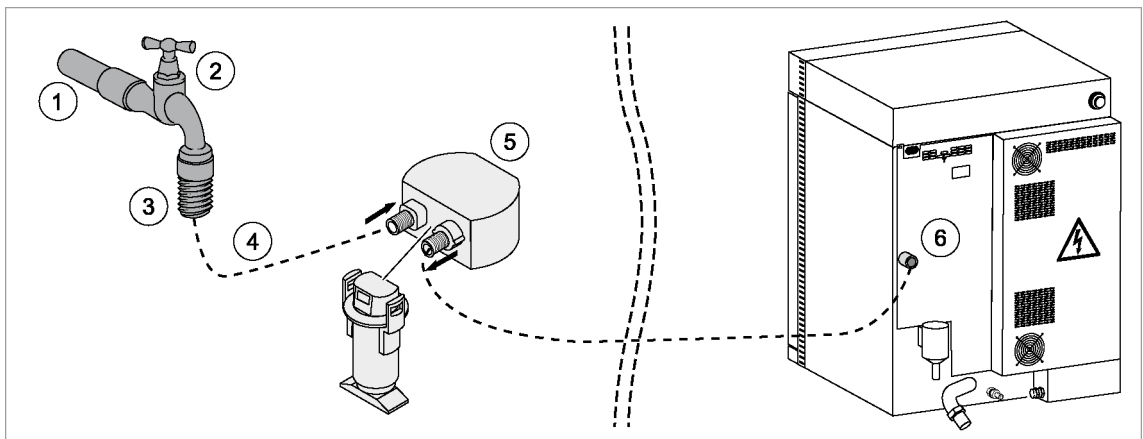
Particles of plastic or rubber may come off if the wrong hoses are used. These particles can damage the unit.

Drinking water supply lines must:

- Be approved for use in the food sector.
- Be suitable for ambient temperatures of at least 80°C.
- Be suitable for water pressure of 6 bars.

6.2.1. Water supply - versions

Fixed drinking water connection - single unit



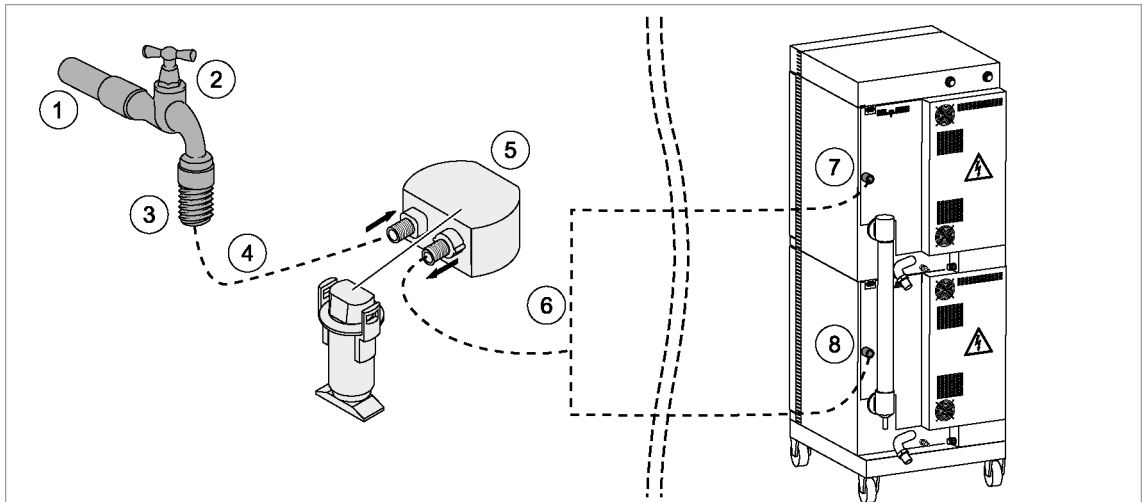
Fitted/layout by owner-operator

- ① Drinking water supply
- ② Shut-off valve
The shut-off valve must still be easily accessible once the unit has been installed.
- ③ ¾" external thread
- ④ Water supply hose
- ⑤ Water treatment system (optional)

Fitted/layout by MIWE service

- ⑥ Water connection at the unit

Fixed drinking water connection - single unit



Fitted/layout by owner-operator

- ① Drinking water supply
- ② Shut-off valve
The shut-off valve must still be easily accessible once the unit has been installed.
- ③ ¾" external thread
- ④ Water supply hose
- ⑤ Water treatment system (optional)
- ⑥ Combination of the two individual water supply hoses (optional)

Fitted/layout by MIWE service

- ⑦ Water connection at top of unit
- ⑧ Water connection at bottom of unit

Water tank system

If there is no fixed drinking water connection, the unit can be operated with a water tank system.

Water is supplied from a drinking water canister and discharged into a wastewater canister.



NOTE!

Units with automatic cleaning systems cannot be operated with water tank systems.

6.2.2. Installation materials

Fixed drinking water connection

The water supply hose may, depending on the order, also be included in the scope of delivery. If a water supply hose is required, it must meet the following technical specifications.

Water supply hose (Item number MIWE 507439.30)	Description
Connection dimensions	¾" union nut x ¾" union nut
Length	max. 3.0 m*
Temperature range	-20°C to +93°C +/-3°C

* The length of hose actually required depends on the distance between the unit and the water drain.

Water tank system

The hoses required are included in the scope of delivery.

6.2.3. Water pressure at the unit

Flow pressure	Value
Acceptable	1.5 to 4 bar
Ideal	2 to 4 bar



NOTE!

Install a pressure regulator if the flow pressure exceeds 4 bar.

6.2.4. Water quality



CAUTION: UNSUITABLE WATER QUALITY CAN CAUSE DAMAGE!

Using the right water quality is important for the operation of the unit. Corrosion and limescale can be caused by some types of water.

- Always analyse the water before installation to prevent such damage.
- Please contact MIWE service or a specialist plumbing / water treatment firm with any questions on the best water quality.



NOTE!

Information about the local water quality may be obtained from your local water provider.

Water analysis covers a large number of parameters. Some are of particular importance for the unit.

Parameter	Unit	Explanation / Effect
Conductivity (Con)	µS/cm	Conductivity is the total of all minerals dissolved in the water. This value is important for calculating non-hardness (NH). For further information, please see "Corrosion check".
Total hardness (TH)	°dH (German degrees)	The total hardness is the carbonate hardness plus the permanent hardness. It describes the concentration of calcium and magnesium ions which cause deposits.
Carbonate hardness (CH)	°dH (German degrees)	Carbonate hardness is the magnesium and calcium ion content, which causes limescale (hard lime or boiler scale).
Permanent hardness (PerH)	°dH (German degrees)	Permanent hardness is the remaining calcium and magnesium ions and sulphates. Permanent hardness causes small deposits of white gypsum, which do not usually pose a problem.
Chloride (Cl)	mg/l	High levels of chloride accelerate corrosion; however, the chloride values depend greatly on the material and on the unit's operating conditions. Even 100 mg/l can lead to corrosion.
Sulphate (SO ₄)	mg/l	High sulphate levels in the water accelerate corrosion. Even 100 mg/l can lead to corrosion.
Chlorine (Cl ₂)	mg/l	Chlorine is used to disinfect drinking water. As well as the smell, it also affects the water's taste. The chlorine content changes in the water supply network. There is therefore no specific content threshold, but rather a limit on the amount that can be added.

Correct water quality values for the operation of MIWE units:

Properties	Acceptable values
Chlorine content	< 0.1 mg/l
Chloride content	< 50 mg/l
Total hardness	5–7°dH
Conductivity	150–250 µS/cm
Other	free from particles

Version without cleaning program



NOTE!

If the values in the table are exceeded, MIWE recommends the installation of a water filter or a demineralisation system with internal mixing. We do not recommend the installation of a domestic water softener unit where the maximum admissible values are exceeded: although these units remove calcium and magnesium, they also add sodium, which also increases corrosion.

For further information, please see the documentation of the filter manufacturer.

Version with MIWE cleaning control cleaning program



NOTE!

If the values in the table are exceeded, MIWE requires the installation of a water filter or a demineralisation system with internal mixing. We do not recommend the installation of a domestic water softener unit where the maximum admissible values are exceeded: although these units remove calcium and magnesium, they also add sodium, which also increases corrosion.

For further information, please see the documentation of the filter manufacturer.

Corrosion check

A corrosion check involves calculating the non-hardness (NH). The non-hardness is primarily the sodium chloride and sodium sulphate levels in the water.

The formula for calculation is as follows (where "Con" stands for conductivity and "GH" for general hardness):

$$\text{Con} - (\text{TH} \times 30) = \text{NH}$$

Non-hardness (NH)	Corrosion Risk
< 250 $\mu\text{S}/\text{cm}$	low - moderate
250–500 $\mu\text{S}/\text{cm}$	Moderate - high
> 500 $\mu\text{S}/\text{cm}$	Corrosion certain

Note: 1°dH is equal to c. 30 $\mu\text{S}/\text{cm}$

§**LOSS OF WARRANTY**

The manufacturer shall not be liable for corrosion damage or scaling which is a result of the use of unsuitable water.

i**NOTE!**

If there is a risk of corrosion, MIWE recommends the installation of a water filter or a demineralisation system with internal mixing

6.3. Water drain

The type of water drain required will depend on the model.

Water drainage hoses must be laid straight and at a downward gradient of at least 2°.



WARNING!

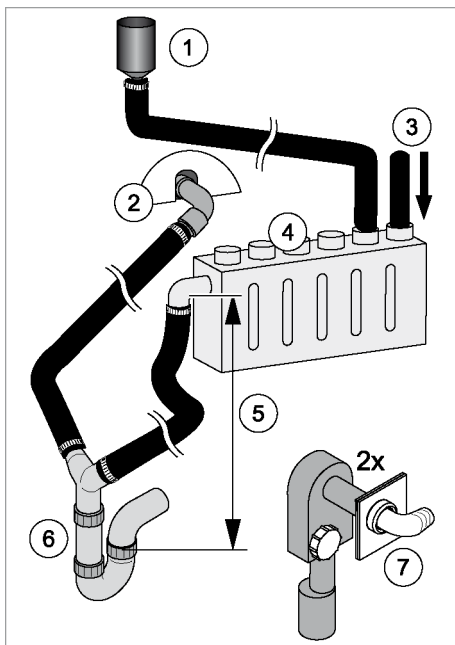
For units with automatic cleaning systems:

- The baking chamber water drainage hose must be laid straight to a siphon with an odour trap and without a water pocket (siphon to be provided by owner-operator).
- The wastewater must not be piped to an open container.

For units with steam condensers:

- Lay the water drainage hose to a siphon.

6.3.1. Unit with cleaning system, with extraction system



- ① Oven condensate drain
- ② Baking chamber drain
- ③ Extraction system condensate drain
- ④ Siphon
- ⑤ Minimum height: 200 mm

Versions

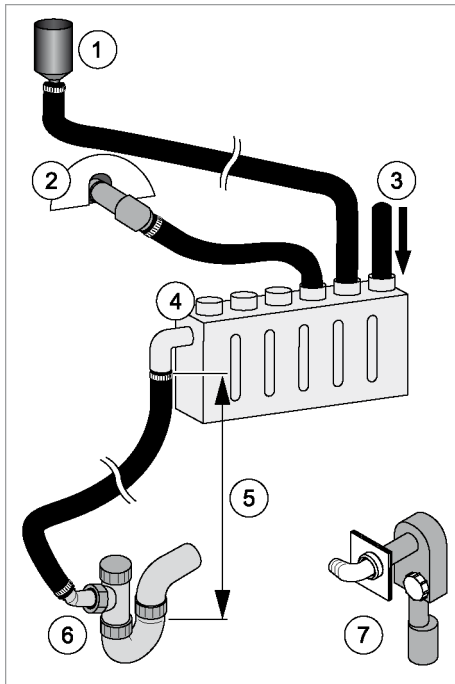
- ⑥ Steam-tight/watertight siphon with double nipple and odour trap
- or
- ⑦ Concealed siphon with odour trap and cleaning opening; 2 x or double nipple



NOTE!

If the baking chamber water drainage hose cannot be laid to a siphon, a wastewater pump must be installed.

6.3.2. Unit with extraction system, without cleaning system

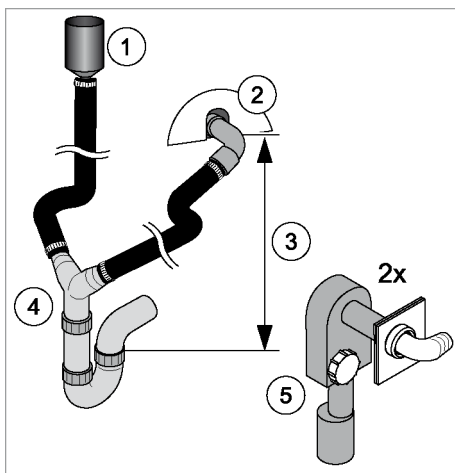


- ① Oven condensate drain
- ② Baking chamber drain
- ③ Extraction system condensate drain
- ④ Siphon
- ⑤ Minimum height: 200 mm

Versions

- ⑥ Steam-tight/watertight siphon with odour trap
- or
- ⑦ Concealed siphon with odour trap and cleaning opening

6.3.3. Unit with cleaning system, without extraction system



- ① Oven condensate drain
- ② Baking chamber drain
- ③ Minimum height: 200 mm

Versions

- ④ Steam-tight/watertight siphon with double nipple and odour trap
- or
- ⑤ Concealed siphon with odour trap and cleaning opening; 2 x or double nipple

6.3.4. Piping wastewater to an open container

If there is no site water drain, the wastewater can be collected in a suitable tank or container.



WARNING!

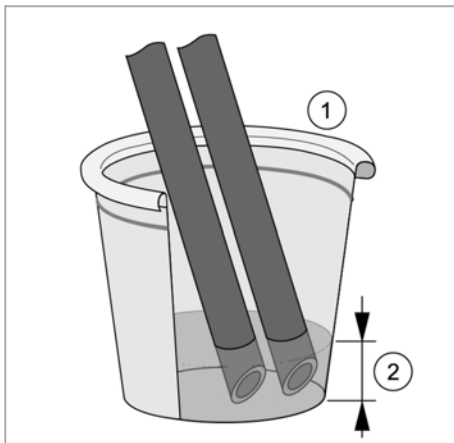
For units with automatic cleaning systems:

- The wastewater must not be piped to an open container.



NOTE!

For hygiene reasons, the tank/container must be cleaned thoroughly every day.



- ① Tank/container
 - Capacity: c. 5–10 litres
 - Resistant to temperatures of up to 100°C
 - Resistant to corrosion
- ② Minimum fill level: c. 100 mm

6.3.5. Installation materials

The drainage hoses and accessories may, depending on the order, also be included in the scope of delivery. If materials are required, they must meet the following technical specifications.



CAUTION: HOT WATER CAN CAUSE DAMAGE!

The water draining off may be as hot as 95°C. Materials that are not heat resistant may melt. The water that then leaks can damage the unit / building and can cause mould to form.

- Always use heat-resistant materials for the water drain.

Single-circuit system

Steam-resistant hot water hose (Item number MIWE 507431.02)	Description
Number	1
Connection dimensions	3/4"
Length	c 2.5 m*
Temperature range	-30°C to +95°C (164°C steam)
Clear width	19 mm
Synthetic inserts resistant to acid	2

* The length of hose actually required depends on the distance between the unit and the water drain.

Hose clamp (galvanized, W1) (Item number MIWE 507436.00)	Description
Number	1
Clamping range	25–40 mm
Width	9 mm

Dual-circuit system

Steam-resistant hot water hose (Item number MIWE 507431.02)	Description
Number	2
Connection dimensions	3/4"
Length	c 2.5 m*
Temperature range	-30°C to +95°C (164°C steam)
Clear width	19 mm
Synthetic inserts resistant to acid	4

* The length of hose actually required depends on the distance between the unit and the water drain.

Hose clamp (galvanized, W1) (Item number MIWE 507436.00)	Description
Number	2
Clamping range	25–40 mm
Width	9 mm

Unit with vapour hood and steam condenser

The following additional materials are required for a vapour hood and steam condenser combination.

Steam-resistant hot water hose (Item number MIWE 507422.02)	Description	
Number	1	2
Connection dimensions	3/4"	3/4"
Length	c 1.0 m*	c. 0.3 m
Temperature range	-30°C to +95°C (164°C steam)	
Clear width	19 mm	
Synthetic inserts resistant to acid	2	

* The length of hose actually required depends on the distance between the unit and the water drain.

Hose clamp (galvanized, W1) (Item number MIWE 507430.00)	Description	
Number	5	
Clamping range	25-40 mm	
Width	9 mm	

Y hose fitting (Item number MIWE 507435.07)	Description	
Number	1	
Diameter	19 mm	
Material	Acetal resin	
Elbow	90°	
Temperature range	0°C to 80°C	

Unit with vapour hood and fan or condensate container

The following additional materials are required for a combination with vapour hood and fan or condensate container.

Steam-resistant hot water hose (Item number MIWE 507422.02)	Description
Number	1
Connection dimensions	3/4"
Length	c 1.0 m*
Temperature range	-30°C to +95°C (164°C steam)
Clear width	19 mm
Synthetic inserts resistant to acid	2

* The length of hose actually required depends on the distance between the unit and the water drain.

Hose clamp (galvanized, W1) (Item number MIWE 507430.00)	Description
Number	1
Clamping range	25-40 mm
Width	9 mm

7. Steam

7.1. Safety information



CAUTION: INCORRECT INSTALLATION CAN DAMAGE THE UNIT!

Incorrectly connecting the ventilation system can damage the unit and adjacent components. It can also lead to problems in baking.

- All work on installing the flue gas / steam system must be carried out by a qualified ventilation technician.



RISK OF FALLING!

A fall from a unit can cause serious injury.

In accordance with health and safety regulations, anyone working at a height of 1.50 m or more must use the appropriate, approved equipment.

- Sturdy ladder
- Scaffolding
- Lifting platform

The owner-operator must provide this equipment and comply with official industry association health and safety regulations.

Qualified ventilation technician

A qualified ventilation technician has the technical training, expertise and experience necessary to install heating, ventilation and air conditioning systems.

Qualified ventilation technicians have been trained specially for the field in which they work. They have qualifications proving that they are familiar with current safety regulations and have the necessary specialist expertise.

The above person(s) must be familiar with/able to:

- The measurement and functioning of system components.
- Effective maintenance schedules and maintenance requirements.
- System fire safety requirements.
- Hygiene requirements pursuant to current ventilation system regulations.
- Check and monitor system components.
- Draw up a test procedure for fire shutters.

7.2. Steam outlet

7.2.1. General information



CAUTION: POOR AMBIENT CONDITIONS CAN CAUSE INJURY!

Discharging steam into the surrounding area/bakery can create unpleasant ambient conditions for personnel due to condensate and heat.

- Always pipe steam outside.
- Pipes must go up from the unit and be laid straight.
- Install pipes made of stainless, steam-tight and non-flammable material (resistant to temperatures of up to 180°C).
- Install condensate drains in pipes over 2 m long.
- If it is impossible to discharge the steam to the outside for structural reasons, install a vapour hood with steam condenser on the unit.



- ① Steam discharge through flue
- ② Steam discharge to the outside
- ③ Discharge of condensate into the siphon installed by the owner-operator
- ④ Opening



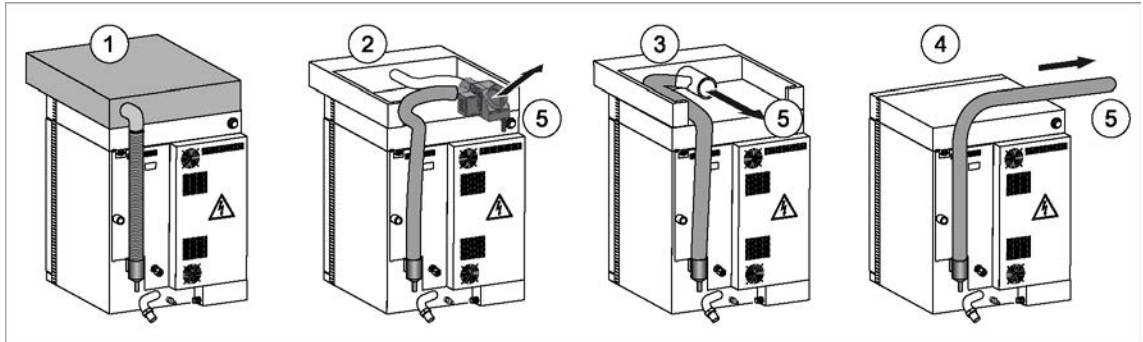
RISK OF INJURY FROM HOT STEAM!

Escaping steam can cause injury and damage.

- The opening must meet the applicable building regulations.

7.2.2. Steam discharge – versions

The diagrams below shows the connection piece at the unit.



- ① Connection to the steam condenser.
No ventilation system needed.
- ② Connection to vapour hood with condensate container
- ③ Connection to vapour hood with fan
- ④ Unit without extraction system.
- ⑤ Connection to the owner-operator ventilation system.

7.2.3. Installation materials

Silicone tube (Item number MIWE 506582.10)	Description
Diameter	80 mm
Model	Steam-tight, corrosion-resistant, non-flammable and chemically resistant
Material	<ul style="list-style-type: none"> • Helix: Spring steel wire • Wall: Silicone-coated fibreglass, double-layered • Cord: Fibreglass yarn
Length	Depends on installation conditions
Temperature resistance	-70°C to +250°C briefly: -85°C to +300°C

Adhesive metal tape (Item number MIWE 506597.10)	Description
Width	50 mm
Model	Amalgamating, abrasion-resistant, water-resistant, acid-proof and chemically resistant
Total thickness	0.75 mm
Temperature resistance	-65°C to +260°C
Length	600 mm

7.3. Overpressure / negative pressure

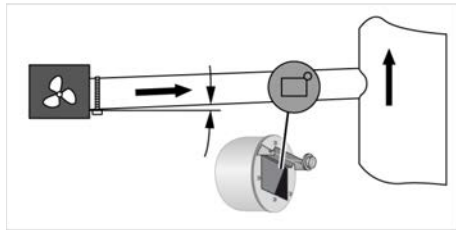


CAUTION: OVERPRESSURE AND NEGATIVE PRESSURE CAN CAUSE MATERIAL DAMAGE!

Overpressure and negative pressure caused by excessively long pipes, the wrong pipe diameter or backflow can cause damage to the unit and / or lead to poor results.

- A negative pressure of 0.1 mbar is standard.
- The negative pressure may briefly be 0.2–0 mbar.
- Make sure that the waste air can escape freely to the outside.
- Protect the waste air outlet from rain, snow and wind.
- Ensure the area around the unit is sufficiently ventilated.
- Contact qualified personnel if required.

7.3.1. Draught control valve



If a flue is used for venting, MIWE recommends the installation of a draught control valve to compensate for pressure fluctuations in the system.

7.4. Moisture produced per hour during baking

Varying levels of moisture are produced during baking depending on the product, quantity of dough and operating mode and have to be extracted.



NOTE!

Humidity is between 3 m³/h and 4 m³/h depending on the product.

- Mostly bread will tend to produce humidity in the range of 3 m³/h
- Mostly rolls will tend to produce humidity in the range of 4 m³/h

The average level of moisture produced during the baking process can be calculated with the following formula:

3.5 m³ moisture per m² baking area per hour

Oven type	Amount of moisture
AE 4.0604	1.0 m ² x 3.5 m ³ /m ² h = 3.50 m ³ /h
AE 6.0604	1.5 m ² x 3.5 m ³ /m ² h = 5.25 m ³ /h
AE 8.0604	2.0 m ² x 3.5 m ³ /m ² h = 7.00 m ³ /h
AE 10.0604	2.4 m ² x 3.5 m ³ /m ² h = 8.40 m ³ /h

Oven type	Amount of moisture
EC 4.0604	1.0 m ² x 3.5 m ³ /m ² h = 3.50 m ³ /h
EC 5.1826	1.5 m ² x 3.5 m ³ /m ² h = 5.25 m ³ /h
EC 6.0604	1.5 m ² x 3.5 m ³ /m ² h = 5.25 m ³ /h
EC 6.1826	1.8 m ² x 3.5 m ³ /m ² h = 6.30 m ³ /h
EC 8.0604	2.0 m ² x 3.5 m ³ /m ² h = 7.00 m ³ /h
EC 8.1826	2.4 m ² x 3.5 m ³ /m ² h = 8.40 m ³ /h
EC 10.0604	2.4 m ² x 3.5 m ³ /m ² h = 8.40 m ³ /h
EC 10.1826	1.5 / 3.0 m ² x 3.5 m ³ /m ² h = 5.25 / 10.50 m ³ /h