



Essential preparations

MIWE condo e+
Unit version 2.5

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MIWE

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MIWE Michael Wenz GmbH
Michael-Wenz-Straße 2-10
97450 Arnstein, Germany
Phone +49-(0)9363-680
e-mail contact@miwe.de
www.miwe.com

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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.



PLEASE NOTE!

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

- Confirmation of order
- Technical dimension and data sheet

This document provides 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 information on handling heavy loads. Failure to attend to this information can lead to serious injury or death.



CRUSH HAZARD!

Indicates safety information on 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



PLEASE 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.
- Follow the instructions on designated 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 in accordance with local regulations 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



PLEASE NOTE!

The detailed technical data is sent to the owner-operator together with the order confirmation. For further information, please see 'Building work', 'Access to the point of installation'. Please contact MIWE in the event of deviations.

2.2.1. Transport inspection

Check that the delivery is complete and for damage caused in transit immediately upon receipt.

If there are visible signs of damage caused in transit:

- 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.



DAMAGE CLAIMS

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 stacker, provided the following conditions are met:

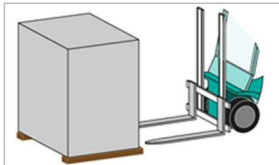
- The forklift truck or pallet stacker must be designed to bear the weight of the transport units.
- The driver must be in possession of the required licence for operating the forklift truck.

When selecting the right lifting gear, you must take into account the load capacity, lifting height, overhang, etc..

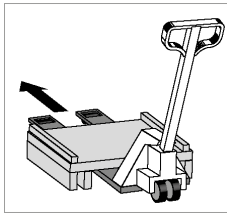


LIFT HERE

Only lift the unit at the marked points. Lifting the unit at other points may damage the unit and pose significant hazards.



1. Drive the forklift truck or pallet stacker 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 fork and packing unit in order to spread the weight.

2.3. Castor types

The unit is supplied with the appropriate rollers according to the order.



INCORRECT TRANSPORT CAN CAUSE INJURY!

There is a risk of injury and risk of considerable damage when transporting the device.

- Castors are not suitable for transporting the unit over long distances.
- For cleaning or inspection and maintenance, only move the appliance as far as the connected cables and hoses allow.
- Only ever transport the unit with suitable transport equipment.
- When the device is not to be moved further, always secure the rollers.

2.4. Packaging

2.4.1. Packaging information

Individual packing units are packed to meet the requirements of the expected transport conditions.

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.

2.4.2. 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.



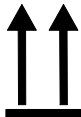
WEIGHT, ATTACHED LOAD

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 centre of gravity.



FASTEN HERE

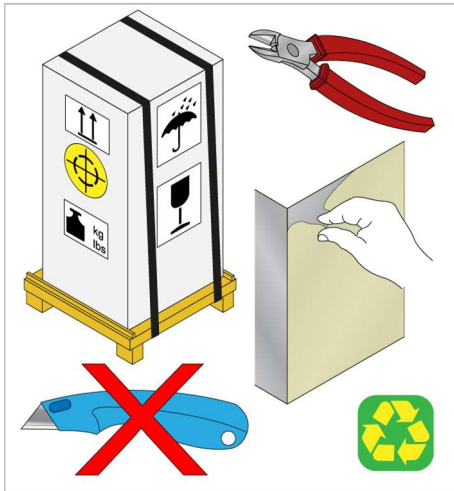
Only attach lifting gear (chains, slings) at the points marked with this symbol.

2.4.3. Unpacking the unit

**NOTE!**

Only use suitable tools that do not damage the unit

- Proceed with care and do not use any sharp or pointed objects.



1. Remove the packaging.
2. Remove the protective film by hand.

2.5. 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/37.4°F to +50°C/122°F.
- 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.
- Avoid large temperature changes as condensate can form.

**NOTE!**

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 principal is the party who has commissioned the unit.

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



NOTICE!

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

- Hygiene and health regulations
- Accident prevention regulations
- Health and safety – for Germany, Betriebssicherheitsverordnung (BetrSichV)
- Legislation on water protection – for Germany, Wasserhaushaltsgesetz (WHG)

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.

**NOTICE!**

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

- Building regulations
- Hygiene and health regulations
- Accident prevention regulations
- Legislation on water protection – for Germany, Wasserhaushaltsgesetz (WHG)

**NOTICE!**

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.
- Calculate the load-bearing capacity of the floor/foundation.
- Assess 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 (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 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



PLEASE NOTE!

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

The overall height of the oven does not take into account the height structure of the means of transport.

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.



PLEASE 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.
- The unit and assembly/installation and work area are sufficiently well lit.
- The ambient temperature at the unit's place of installation (in particular back wall of oven, additional housing, etc.) does not exceed 40°C/104°F and 60% relative humidity.
- The equipment is accessible for cleaning, inspection, maintenance, and faults.

3.3.2. Flatness tolerances



NOTICE!

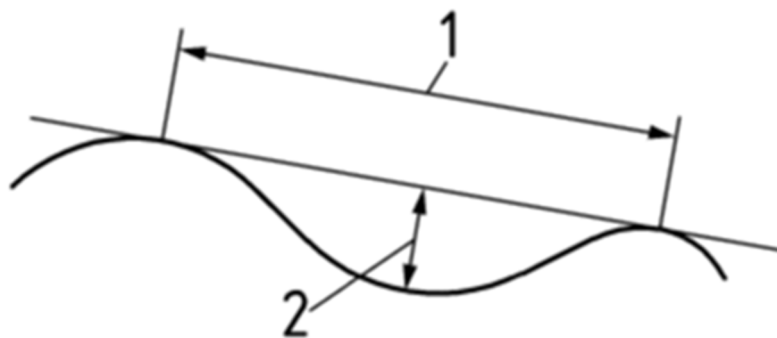
Flatness tolerances for finished floors such as

- heavy-duty industrial screed
- screed for laying flooring
- flooring
- tiling
- smooth screed and glued flooring

must be observed.

In Germany, the flatness tolerances for flooring must comply with DIN 18202. Corresponding specifications apply in other countries.

MIWE's recommendation



1	Distance between measuring points up to	m/inch	1/39.4	4/157.5
2	Actual dimension as limit value	mm/inch	4/0.16	10/0.39

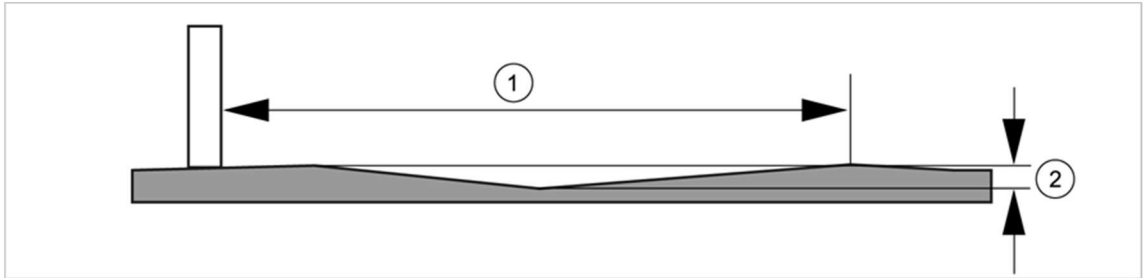
3.3.3. Angle tolerances



NOTICE!

Angle tolerances for components in Germany in accordance with DIN 18202. Corresponding specifications apply in other countries.

MIWE's recommendation



①	Distance between measuring points – nominal dimensions in m/inch	greater than	1/39.4
		up to	3/118.1
②	Actual dimension as limit value in mm/inch		±8/0.32

3.3.4. Load on floor/foundation

The floor/foundation must be heat-resistant and designed to bear the weight of the oven.



CAUTION, DAMAGE DUE TO OVERLOADING!

Too heavy a load can damage the floor/foundation.

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

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



NOTICE!

Exact dimensions can be found in the technical dimension and data sheet.

3.3.5. Ventilation and extraction on the unit

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.
- No liquids or other foreign substances can enter the unit through the vents.

3.3.6. Building ventilation

The oven influences the pressure conditions in the building due to its extraction and vent lines. This influence varies according to

- User behaviour of the oven
- Ambient conditions

For further information, please see the chapter 'Steam'.



CAUTION: LOW AMBIENT PRESSURE CAN CAUSE DAMAGE!

Atmospheric negative pressure must always be avoided in the vicinity of the oven. For further information, please see the chapter 'Steam' – 'Overpressure / negative pressure'.

Separate extraction – vapour and steam

	Maximum volumetric flow rate	
	Vapour hood	Steam extraction for baking chamber per m ² of baking area
Vapour hood 470	1200 m ³ /h at 40 Pa	0 to 25 m ³ /h at -2 to -5 Pa at the connection piece
Ventilation system provided by owner-operator	Responsibility of the owner-operator	0 to 25 m ³ /h at -2 to -5 Pa at the connection piece

Common extraction – vapour and steam

	Maximum volumetric flow rate
Vapour hood 190 with fan	250 m ³ /h at -5 to +20 Pa at the connection piece
Vapour hood with condensate container	160 m ³ /h at -5 to +20 Pa at the connection piece
Vapour hood with dynamic ventilation	160 m ³ /h at -5 to +20 Pa at the connection piece



NOTICE!

When the following steam condensers are used, no overpressure or negative pressure is produced in the bakery, since no air is taken out.

- MIWE SK-M
- MIWE SK II

Disturbances**Openings in walls**

- Gates, doors, windows, drawers, flaps

Weather

- Outside temperatures influence the chimney effect
- Wind conditions influence the chimney effect

Dirt

- Partially or completely blocked flues/hoses
- Dust in ducts
- Dirt in flues/ducts/hoses
- Soot and grease in flues/ducts/hoses

3.3.7. Exhaust air and fat separation systems**NOTE!**

When processing products with a high fat content/fat discharge, the owner-operator must ensure that suitable ventilation and fat separation systems are in place where required.

3.3.8. External workstations – safe distances from the oven

Any external workstations must not be in direct proximity to an oven.

When selecting the site, please make sure that:

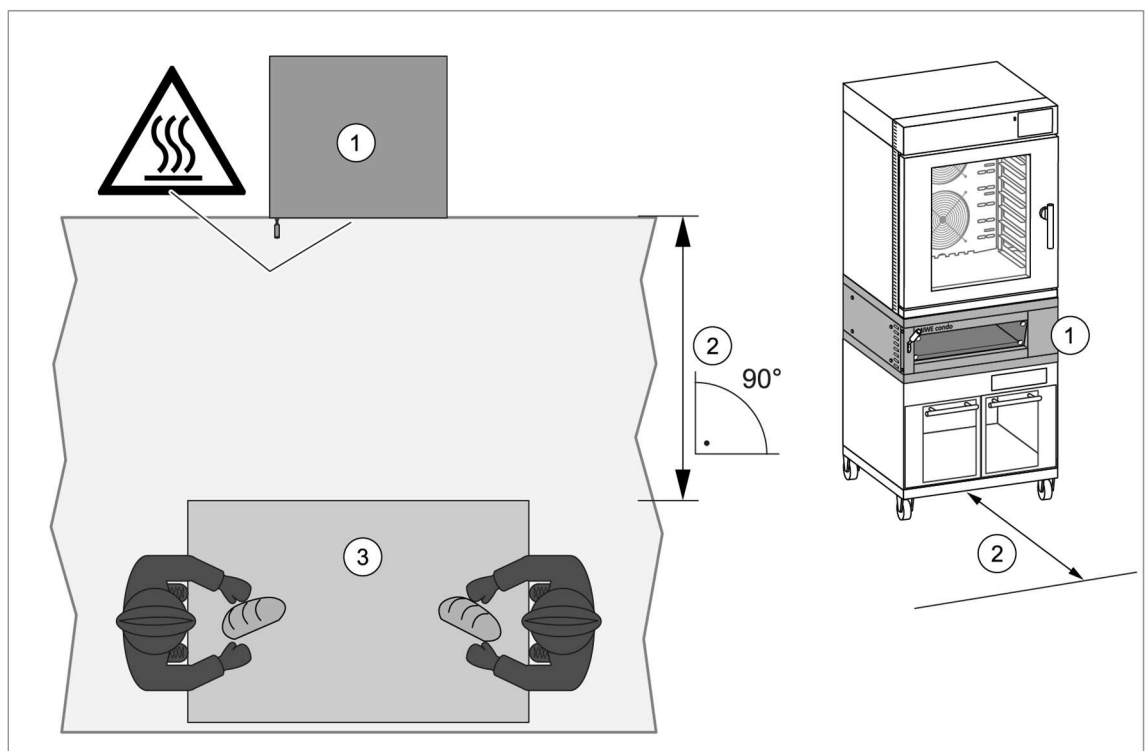
- no contact with the oven is possible in the event of a trip or fall.
- the safety clearance between the oven and the external workstation is at least 2 m/78.74 inch.
- the external workstation is at a 90° angle to the oven.



NOTICE!

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

- Betriebssicherheitsverordnung (BetrSichV) for Germany
- Arbeitsschutzgesetz (ArbSchG) for Germany



- ① Oven
- ② Safety clearance
- ③ External workstation

3.3.9. Height with multiple units



EXCEEDING THE MAXIMUM UNIT HEIGHT MAY CAUSE INJURY!

The unit may tip over and cause serious injury if the maximum permitted unit height is exceeded:

- The top edge of the top oven must not exceed 2200 mm/86.61 inch.

Exception:

Where a vapour hood is installed above the top oven.



WARNING: RISK OF INJURY IF UNITS WITH VAPOUR HOODS ARE NOT HIGH ENOUGH!

Failure to comply with the minimum unit height can lead to injuries:

- The lower edge of the vapour hood should not be lower than 1900 mm/74.80 inch.



RISK OF SCALDING!

There is a risk of scalding when performing work above head height (at or above 1600 mm/62.99 inch).

- Use approved steps.
- Wear the prescribed protective clothing in accordance with local regulations for all work.

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.
The site must be designed in such a way that

- No damage, particularly through the effects of heat, can occur during installation and 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.
- It complies with the requirements of the locally applicable accident prevention regulations.
- It complies with the requirements of the locally applicable fire safety regulations.

4.2. Fire detection systems and sensors around the oven unit



CAUTION: SAFETY DEVICE 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.

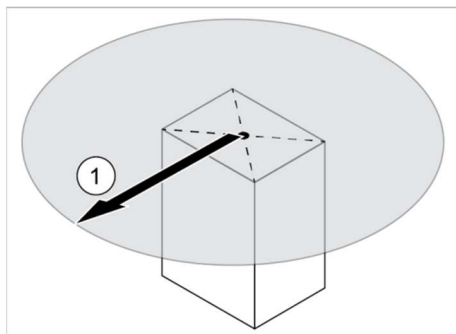


CAUTION: SPRINKLER SYSTEMS CAN CAUSE DAMAGE!

Air temperatures of $> 60^{\circ}\text{C}/140^{\circ}\text{F}$ 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/98.43 inch



PLEASE NOTE!

Following consultation with the competent safety officer, sprinkler heads $T = 92^{\circ}\text{C}/197.6^{\circ}\text{F}$ are permitted.

The use of sprinkler heads is the responsibility of the owner-operator.

4.3. Escape routes/emergency exits

**PLEASE 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-fighting equipment

Fire extinguishers/fire-fighting equipment must be provided in the operating areas in accordance with national and regional regulations.

The type of fire extinguisher/fire-fighting equipment depends on the fire hazard for the:

- operating equipment
- operating materials

**PLEASE 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, make sure that it cannot be switched back on, and check that no voltage is present.
- 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.
- When laying the connecting power cable, make sure that it is not kinked or pinched.



RISK OF FALLING!

A fall can cause serious injury.

In accordance with health and safety regulations, anyone working at a height of 1,50 m/59.06 inch or more may only carry out the work using the appropriate and approved assistive devices.

- Stable ladder
- Scaffolding
- Lifting platform

The owner-operator must provide this equipment and comply with national health and safety regulations.

These requirements apply to Germany. Corresponding specifications apply in other countries.

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.

Knowledge of the following is necessary:

- Installation of low-voltage systems.
- Operation of electrical systems.
- Machine safety.
- Electrical safety measures.
- Human-machine interfaces.
- Installation of stationary electrical facilities.
- Laying and connecting electrical lines and connections.
- Fitting distributors, residual current devices, switches, pushbuttons and sockets.
- Measuring the effectiveness of electrical safety measures.

**NOTE ON THE ELECTRICAL SYSTEM!**

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)
- Corresponding regulations apply in other countries.

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.



NOTICE!

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

Germany

- DIN VDE 0100-100
- DIN VDE 0100-410:2018-10
- DIN VDE 0100-530:2018-6

European Economic Area

- DIN IEC 60364-5-53 (VDE 0100-543)
- or
- IEC 64/1775/CD

5.2.1. Electrical plug and socket connection ≤ 32 A

Installation of residual current device by owner-operator

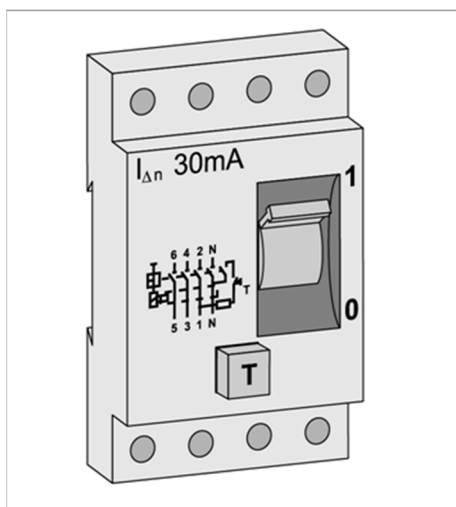
- 30 mA RCD (Residual Current Device) type A

5.2.2. Fixed electrical connection or electrical plug and socket connection > 32 A

Recommendation for the safe operation of MIWE ovens

Installation of residual current device

- 30 mA RCD (Residual Current Device) type A



5.2.3. Installation information for owner-operator

- 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.
- Install a distribution box (owner-operator).
 - Fit RCD.
 - Fit circuit breaker.
 - Prepare lines in accordance with the power ratings required.
 - Fit electric master switch (all-pole circuit breaker).
- Inspect the electrical system and log the inspection.
- Keep and archive training records for trained staff.

5.3. Electric master switch (all-pole circuit breaker)

The standard electric master switch is designed in accordance with regional and national laws and regulations in such a way that the

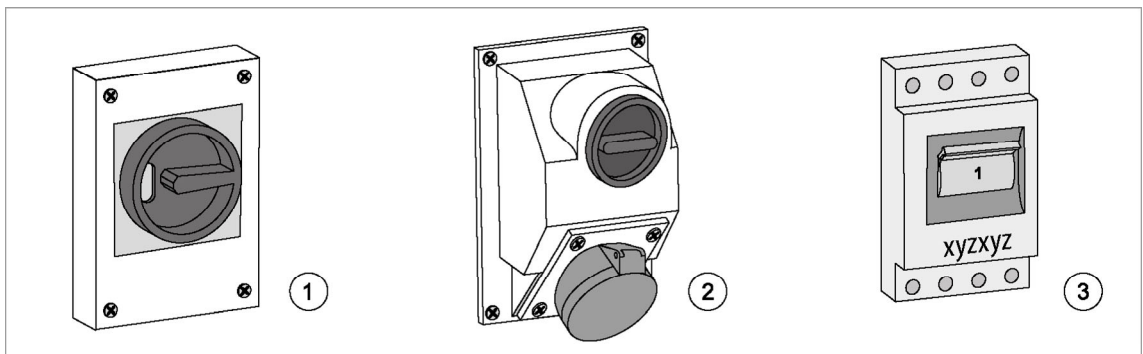
- three line wires
- or
- the three line wires + neutral wire
- are separated.



NOTICE!

- Electric master switches are safety devices for disconnecting the unit from the power supply.
- Electric plug and socket connections or master switches must be easily accessible at all times.
- Use of the electric master switch must be part of staff training.

Versions



- ① Fitted in housing
- ② Fitted in housing
- ③ Fitted in distribution box

Note: the electric master switch must be labelled.

5.4. Electrical connection

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



DANGER!

Electrical plug and socket connections or master switches are safety devices and must be easily accessible at all times.



NOTICE!

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

The electrical interface may vary depending on the unit.



NOTICE!

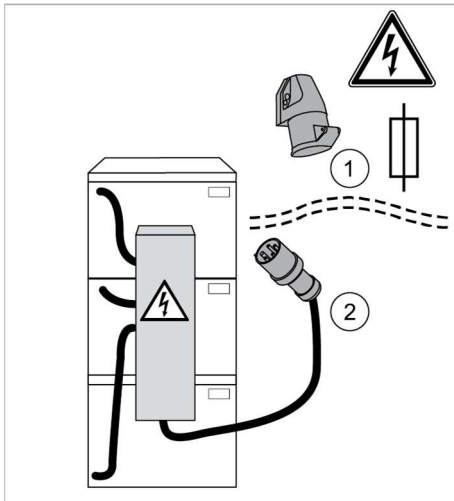
An electric master switch is absolutely necessary.
For further information, please see 'Electric master switch (all-pole circuit breaker)'.

Recommendation

For electrical plug and socket connections, an additional electric master switch is recommended but not absolutely essential.

For further information, please see 'Electric master switch (all-pole circuit breaker)'.

5.4.1. Fuse box to site (owner-operator) socket



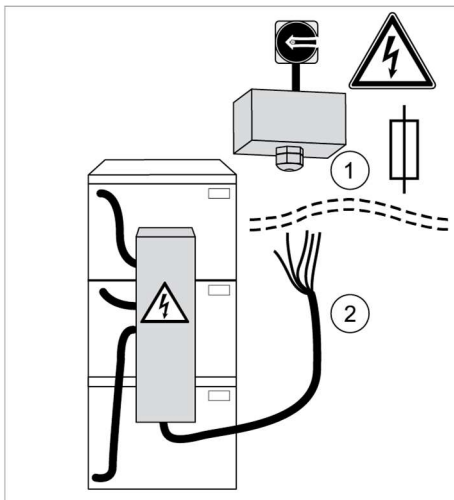
Fitted/layout by owner-operator

- ① Power supply

Fitted/layout by MIWE

- ②
 - Units with rating plates are connected at the fuse box at the back of the MIWE unit.
 - A shared connecting power cable with CEE connector (IP44) runs from the fuse box to the site (owner-operator) socket.

5.4.2. Fuse box to site (owner-operator) distribution box



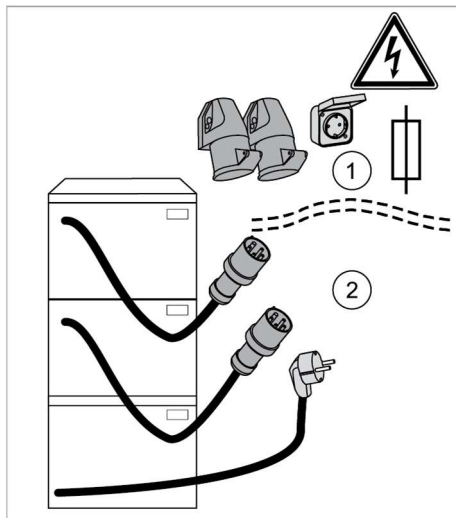
Fitted/layout by owner-operator

- ① Power supply

Fitted/layout by MIWE

- ②
 - Units with rating plates are connected at the fuse box at the back of the MIWE unit.
 - A connecting cable runs from the fuse box for a fixed site (owner-operator) connection.

5.4.3. Separate supply line per unit to site (owner-operator) sockets



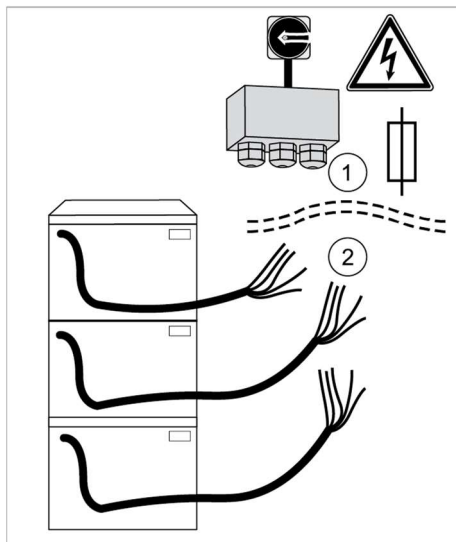
Fitted/layout by owner-operator

- ① Power supply

Fitted/layout by MIWE

- ② • Each deck with a rating plate has a CEE connector (IP 44).
- The proofing cabinet with rating plate has a connector with earthing contact (IP 44).

5.4.4. Separate supply line per unit to site (owner-operator) distribution box



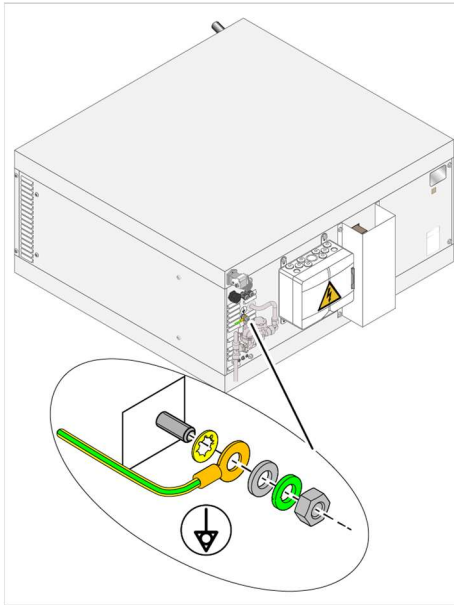
Fitted/layout by owner-operator

- ① Power supply

Fitted/layout by MIWE

- ② • Each deck or the proofing cabinet with rating plate has a connecting cable for a fixed connection.

5.5. Equipotential bonding



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



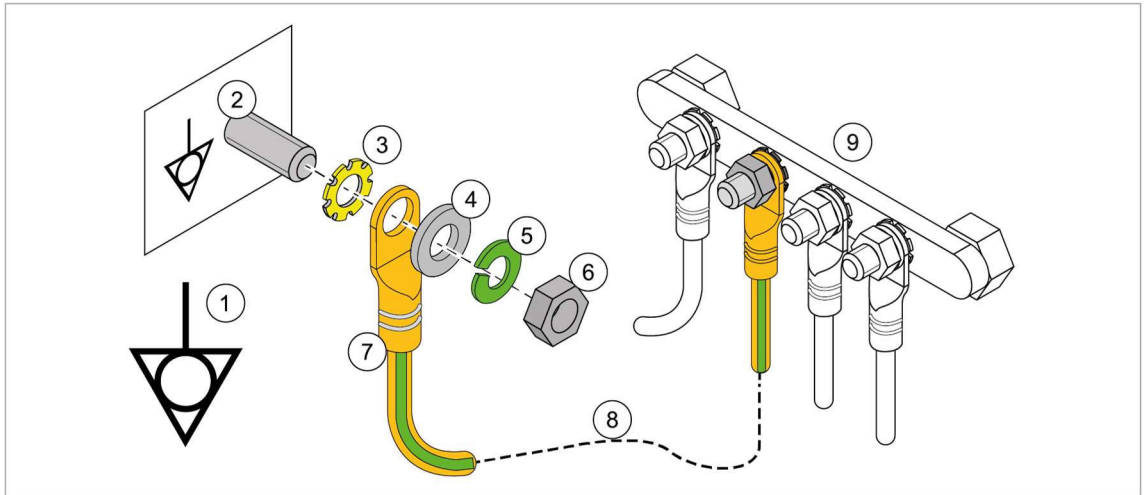
NOTE!

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



WARNING!

Before connecting the unit to a data network, connect it to the main earthing bar.

**Fitted/layout by MIWE**

- ① Equipotential bonding label
- ② Equipotential bonding bolt, M6
- ③ Toothed washer
- ④ Washer
- ⑤ Spring washer; prevents the connection from coming loose
- ⑥ Retaining nut

Fitted/layout by owner-operator

- ⑦ Cable eye with equipotential bonding conductor

**NOTICE!**

The earth connection for the building must comply with DIN VDE 0100-540 in Germany. Corresponding specifications apply in other countries.

- ⑧ Protective equipotential bonding conductors for connecting to the main earthing bar.
Minimum cross-section:
 - Copper: 6 mm²/AWG10
 - Aluminium: 16 mm²/AWG6
- ⑨ Main earthing bar

5.6. Network connection (optional)

MIWE units can be connected to a network.

Various different types of networking are possible depending on the type of control system.

Some types of networking can be combined.



CAUTION: INSUFFICIENT EQUIPOTENTIAL BONDING CAN CAUSE DAMAGE!

Large differences in potential can damage network devices.

- The building must have a main earthing bar. In Germany, this connection must comply with DIN VDE 0100-540. Corresponding standards apply in other countries.



NOTICE!

- The unit network connection must be inside the building, and the unit may only be connected to a local, secure network (LAN).
- A unique IP address is required for each network adapter.
- In the firmware from 10/2022, MIWE supports the automatic assignment of network parameters with DHCP.
Alternatively, a static IP address can be assigned manually.

Network technician

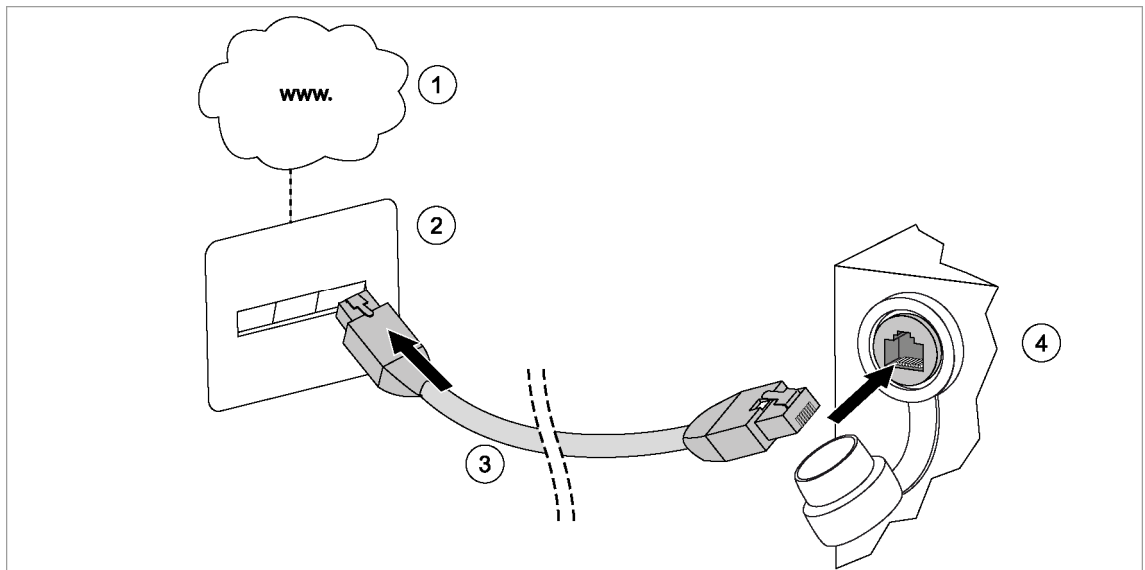
A network technician has the technical training, expertise and experience necessary to assess and carry out all network work and services assigned to them and to recognise potential hazards.

Knowledge of the following is necessary:

- Hardware and software for the operation of computer networks
- Planning and maintaining computer networks
- Methods for ensuring computer network security

In Germany, examples of network technicians include "Fachinformatiker für Systemintegration" and "IT-Systemelektroniker".

5.6.1. Connections for different types of networking



Fitted/layout by owner-operator

- ① Internet access
Requirement for MIWE smart baking suite
- ② RJ-45 network interface
 - TC controls: one network interface per operating unit
 - FP controls: one network interface per complete unit
 - Bandwidth for each network interface: at least 512 kbit/s
- ③ Ethernet cable

Fitted/layout by MIWE

- ④ RJ-45 network interface at the oven

5.6.2. Data connections in the network

Certain data connections must be possible in the network to allow networking.

Type of networking	Data connections
MIWE winCAB	TCP data connection: Port 22 (SSH) TCP data connection: Port 11366 (MIWE) TCP data connection: Port 22224 (MIWE)
MIWE smart baking suite	UDP data connection: Open VPN Port 1194 UDP data connection: DNS Port 53
MIWE bakery connect (read access)	TCP data connection: Port 502 (Modbus) or UDP data connection: Port 502 (Modbus)
MIWE bakery connect plus (write access)	
Shop-IQ connect	
Shop-IQ connect plus	

5.6.3. MIWE winCAB



Management software for all MIWE units connected to the local network.

Access to

- the management software
 - individual control systems
- can be password-protected.

Requirements

- MIWE TC classic, MIWE TC go!, MIWE FP
- MIWE unit with Ethernet connection
- MIWE unit access to the local network
- Windows computer with network access

5.6.4. MIWE smart baking suite

Gives users external access to MIWE units connected to the local network.

Requirements

- MIWE TC classic, MIWE TC go!
- MIWE unit with Ethernet connection
- MIWE unit Internet access
- Customer account in the MIWE smart baking suite

5.6.5. MIWE bakery connect / MIWE bakery connect plus**Shop-IQ connect / Shop-IQ connect plus**

Interfaces allow access from external systems to MIWE units connected to the local network.

Requirements

- MIWE TC classic, MIWE TC go!
- MIWE unit with Ethernet connection

6. Water / waste water

6.1. Safety information



CAUTION: INCORRECT INSTALLATION CAN CAUSE DAMAGE!

Incorrect water/waste water system installation can

- cause damage to the unit and/or adjoining components.
- cause problems in baking.
- pose a risk to ground water purity.

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



RISK OF FALLING!

A fall can lead to serious injuries.

In accordance with health and safety regulations, anyone working at a height of 1.50 m/59.06 inch or more may only carry out the work using the appropriate and approved assistive devices.

- Stable ladder
- Scaffolding
- Lifting platform

The owner-operator must provide this equipment and comply with national health and safety regulations.

These requirements apply to Germany. Corresponding specifications apply in other countries.

Qualified plumber

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

- Installation of plumbing systems in accordance with plans
- System maintenance and repair

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 for laying pipes, e.g. break through walls and ceilings
- Install, connect and adjust water treatment systems
- Commission supply facilities and systems, hand them over to the customer and instruct the customer in their operation
- Maintain and repair supply systems
- Clean unit/system components and piping
- Adjust systems and draw up maintenance logs
- Provide and transport components, materials and tools; set up the work area
- Check and assess work; implement quality assurance measures
- Technical standards for drinking water systems
- Technical standards for wastewater systems

6.2. Water supply



CAUTION: HOT WATER CAN CAUSE DAMAGE!

- Only connect cold (up to 25°C/77°F), 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:

- meet the national regulations on drinking water safety.
- be approved for use in the food sector.
- be suitable for ambient temperatures of at least 80°C/176°F.
- be suitable for water pressure of 10 bar/145.04 psi.



CAUTION: INCORRECT INSTALLATION CAN CAUSE DAMAGE!

An incorrectly installed water system can damage the unit and adjacent components. It can also lead to problems in baking.

- Water supply hoses must be laid straight.

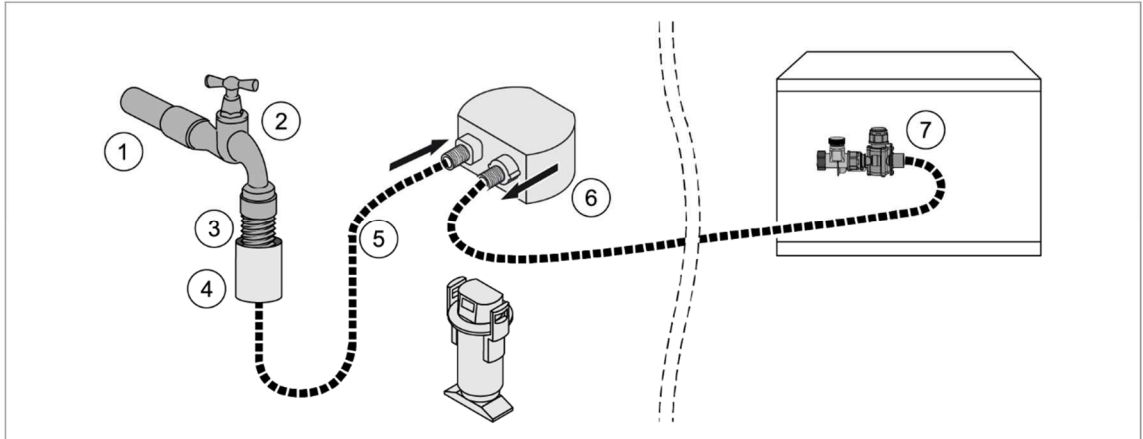
6.2.1. Single-deck unit / double baking chamber



CAUTION: INCORRECT INSTALLATION CAN DAMAGE THE UNIT!

An incorrect connection of the drinking water supply line can damage the unit and cause problems in baking.

- Connect the drinking water supply directly to the water system of the oven.
- Shut-off valve must still be easily accessible once the unit has been installed.



Fitted/layout by owner-operator

- ① Drinking water supply
- ② Shut-off valve
- ③ External thread
- ④ Non-return valve
 - Prevents water from flowing back out of the unit and into the drinking water supply.
 - Must meet the national regulations on drinking water safety.
 - For Australia: approved in accordance with WaterMark AS2845 (ZURN MODEL 700; LIC. 1379).
- ⑤ Drinking water supply line
- ⑥ Water filter for water treatment (optional)

Fitted/layout by MIWE

- ⑦ Drinking water supply line connection

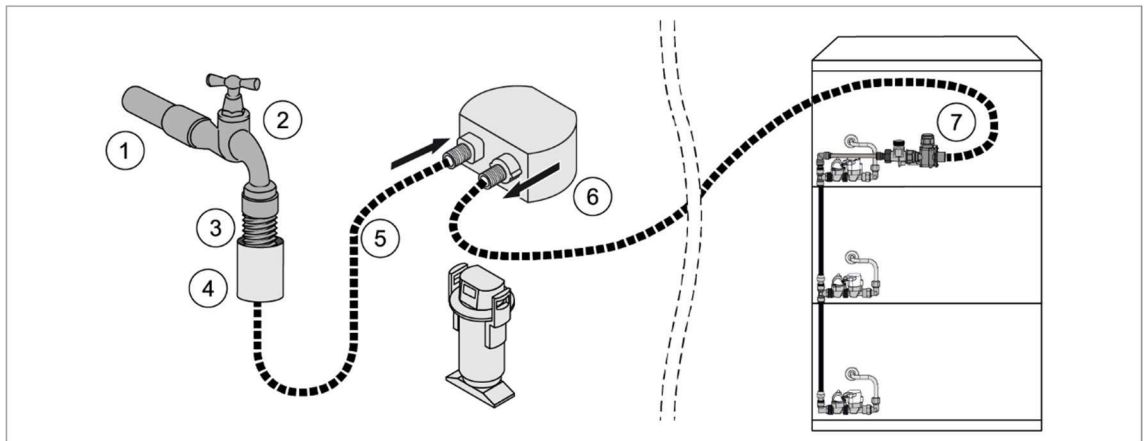
6.2.2. Multi-deck unit



CAUTION: INCORRECT INSTALLATION CAN DAMAGE THE UNIT!

An incorrect connection of the drinking water supply line can damage the unit and cause problems in baking.

- Connect the drinking water supply directly to the water system of the oven.
- Shut-off valve must still be easily accessible once the unit has been installed.



Fitted/layout by owner-operator

- ① Drinking water supply
- ② Shut-off valve
- ③ External thread
- ④ Non-return valve
 - Prevents water from flowing back out of the unit and into the drinking water supply.
 - Must meet the national regulations on drinking water safety.
 - For Australia: approved in accordance with WaterMark AS2845 (ZURN MODEL 700; LIC. 1379).
- ⑤ Drinking water supply line
- ⑥ Water filter for water treatment (optional)

Fitted/layout by MIWE

- ⑦ Connection for drinking water supply line for several components

6.2.3. Installation materials

If a water supply hose is required, it must meet the following technical specifications.

Water supply hose (MIWE material number: 507439.30)	Description
Properties	Suitable for drinking water
Connection dimensions	¾" union nut x ¾" union nut
Length	max. 3,0 m/118.11 inch*
Temperature range	-20°C/-4°F to +93°C/199.4°F +/-3°C/37.4°F

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



NOTICE!

Non-return valve for Australia: approved in accordance with WaterMark AS2845 (ZURN MODEL 700, LIC. 1379).

6.2.4. Unit water pressure

Flow pressure	Value
Acceptable	1.5 bar/21.76 psi to 6 bar/87.02 psi



NOTICE!

A pressure regulator is installed in the water system of the oven. If the flow pressure rises above 1.5 bar/21.76 psi, the pressure regulator limits the pressure to the permissible value.

Dynamic pressure	Value
Acceptable	max. 6 bar/87.02 psi

Unit water flow



NOTICE!

The required flow rate per unit must be at least 4 litres/135.26 US fl.oz. in one minute.

6.2.5. 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	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	Carbonate hardness is the magnesium and calcium ion content that causes limescale (hard lime or boiler scale).
Permanent hardness (PerH)	°dH	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.

Guide 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 [German hardness]
Carbonate hardness	1–3°dH
Conductivity	150–250 µS/cm
Other	free from particles



NOTICE!

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 or apps available from MIWE.

Corrosion check

A corrosion check must be carried out to establish the risk of corrosion.

The formula for calculation is as follows:

$$\text{Con} - (\text{CH} \times 30) = \text{Corrosion risk}$$

Corrosion risk µS/cm	
< 250	Low
250–500	Moderate
> 500	Corrosion certain

Note: 1°dH is equal to c. 30 µS/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.

6.3. Water drain

The oven comes fitted with a siphon.

The owner-operator must fit a water drain with an odour trap and light liquid separator (oil separator) for the water draining from the siphon.



NOTICE!

For models with a steam condenser, guide the water drainage hose into a siphon.



CAUTION, OILS AND FATS CAN HARM THE ENVIRONMENT!

Waste water in bakeries can contain oil and fat from fatty products.

This must be disposed of in accordance with the waste disposal regulations applicable for the owner-operator – in Germany the Wasserhaushaltsgesetz [German Federal Water Act] (WHG).

- A light liquid separator (oil separator) must be installed by the owner-operator.
- Design and lay the flooring in the bakery in such a way that there is no risk to groundwater.

6.3.1. Contamination by waste water



CAUTION, WASTE WATER BACKFLOW CAN CAUSE MATERIAL DAMAGE!

If the water drainage hose is laid horizontally or sloping up, the waste water will not drain and dirt from the waste water system may flow back into the unit.

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



LEGAL NOTICE!

In Germany, the DVGW regulations apply. Corresponding regulations apply in other countries. Adherence to these regulations must be ensured by the owner-operator.

6.3.2. Damage caused by incorrect material

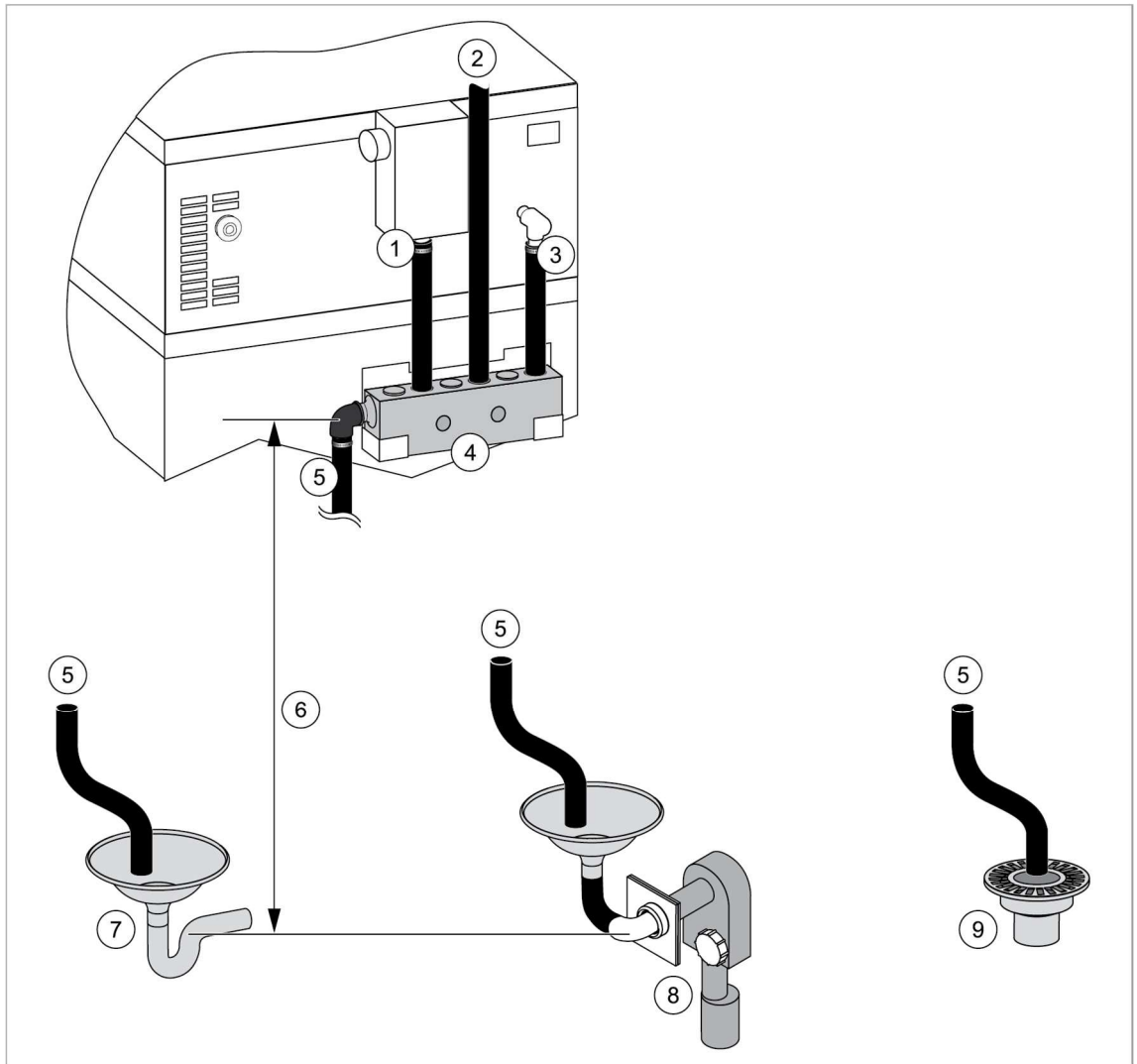


CAUTION, MATERIAL DAMAGE DUE TO HOT WATER!

The water draining out can be as hot as 95°C/203°F, and can melt materials that are not heat-resistant. 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.

6.3.3. Siphon drain – Overview

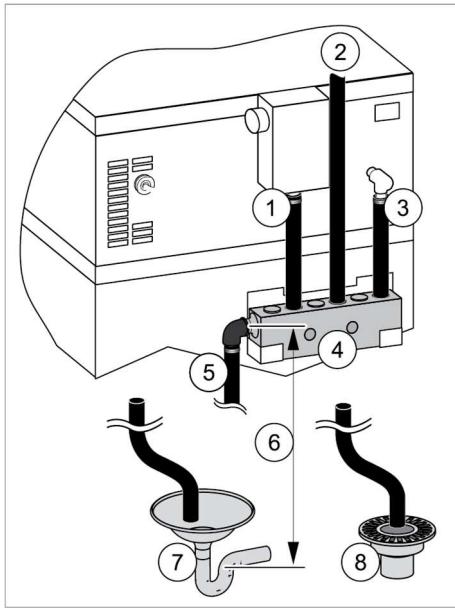


- ① Oven condensate drain
- ② Extraction system condensate drain
- ③ Steam device drain
- ④ Siphon with bracket
- ⑤ Siphon drainage hose
- ⑥ Minimum height: 200 mm/7.87 inch

Versions

- ⑦ Siphon drainage hose laid to lower container with an odour trap.
- or
- ⑧ Concealed siphon with odour trap and cleaning opening
- or
- ⑨ Siphon drainage hose laid to a floor drain with an odour trap.

6.3.4. Siphon drainage – single-deck unit



- ① Oven condensate drain
- ② Extraction system condensate drain
- ③ Steam device drain
- ④ Siphon with bracket
- ⑤ Siphon drainage hose
- ⑥ Minimum height: 200 mm/7.87 inch

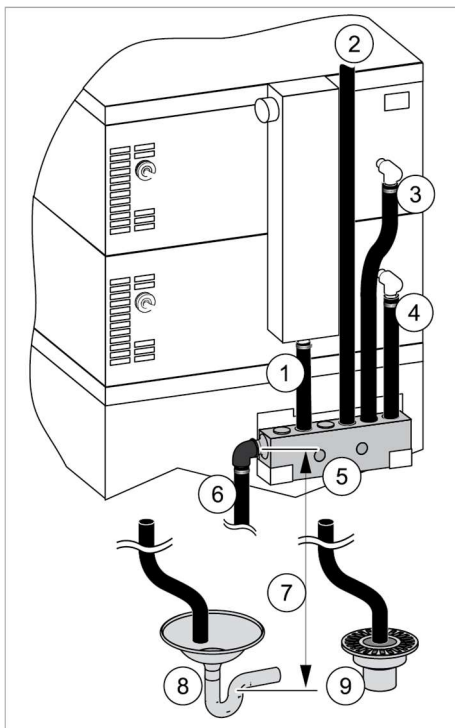
Versions

- ⑦ Siphon drainage hose laid to lower container with an odour trap.

or

- ⑧ Siphon drainage hose laid to a floor drain with an odour trap.

6.3.5. Siphon drainage – two-deck unit



- ① Oven condensate drain
- ② Extraction system condensate drain
- ③ Steam device drain, top
- ④ Steam device drain, bottom
- ⑤ Siphon with bracket
- ⑥ Siphon drainage hose
- ⑦ Minimum height: 200 mm/7.87 inch

Versions

- ⑧ Siphon drainage hose laid to lower container with an odour trap.

or

- ⑨ Siphon drainage hose laid to a floor drain with an odour trap.

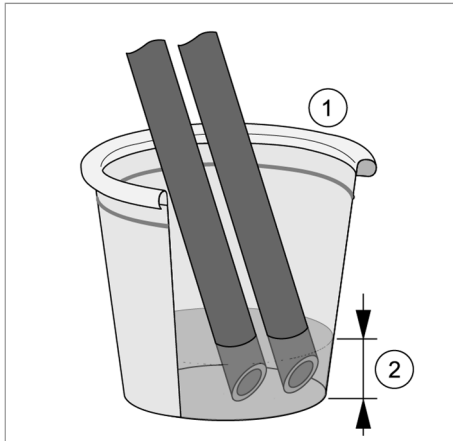
6.3.6. Piping waste water to an open container

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



NOTICE!

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



- ① Tank/container
 - Capacity: approximately 5-10 litres (169.07-338.14 US fl.oz.)
 - Resistant to temperatures of up to 100°C/212°F
 - Resistant to corrosion
- ② Minimum filling height: approx. 100 mm/3.94 inch

6.3.7. 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/203°F. 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.

Steam-resistant hot water hose (MIWE material number: 507431.02)	Description
Number	Depending on design
Connection dimensions	3/4"
Length	approx. 2.5 m/98.43 inch*
Temperature range	-30°C/-22°F to +95°C/203°F (164°C/327.2°F vapour)
Clear width	19 mm/3/4"
Synthetic acid-resistant inserts	2 pcs.

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

Hose clamp (galvanised, W1) (MIWE material number: 507436.00)	Description
Number	Depending on design
Clamping range	25-40 mm/0.98-1.58 inch
Band width	9 mm/0.35 inch

Unit with vapour hood or steam condenser (optional)

Steam-resistant hot water hose (MIWE material number: 507431.02)	Description
Number	Depending on design
Connection dimensions	3/4"
Length	approx. 1.0 m/39.37 inch*
Temperature range	-30°C/-22°F to +95°C/203°F (164°C/327.2°F vapour)
Clear width	19 mm/3/4"
Synthetic acid-resistant inserts	2 pcs.

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

Hose clamp (galvanised, W1) (MIWE material number: 507436.00)	Description
Number	Depending on design
Clamping range	25-40 mm/0.98-1.58 inch

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.

- Have all work for installing the steam/ventilation system carried out by a qualified ventilation technician.

**RISK OF FALLING!**

A fall can cause serious injury.

In accordance with health and safety regulations, anyone working at a height of 1,50 m/59.06 inch or more must use the appropriate, approved equipment.

- Sturdy ladder
- Scaffolding
- Lifting platform

The owner-operator must provide this equipment and comply with national health and safety regulations.

These requirements apply to Germany. Corresponding specifications apply in other countries.

Qualified ventilation technician

A qualified ventilation technician has the technical training, expertise and experience necessary to assess and carry out the installation of heating, ventilation and air conditioning systems and to recognise potential hazards.

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 test report for fire shutters.

7.2. Steam outlet

Steam produced during baking is discharged through the steam outlet into the discharge line provided by the owner-operator and piped outside.



LEGAL NOTICE!

The owner-operator must comply with regional and national regulations.

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.

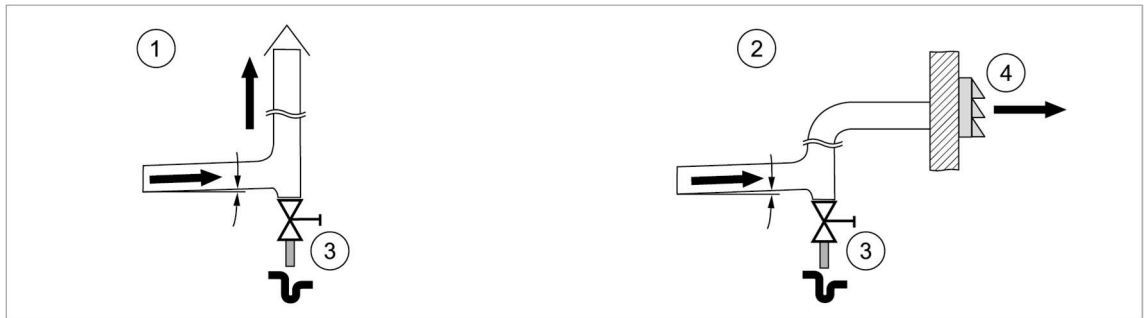
- Steam must be piped outside through discharge lines.
- Discharge lines must be laid sloping upwards from the unit.
- Install discharge lines made of stainless, steam-tight and non-flammable material (resistant to temperatures of up to 180°C/356°F).
- The diameter of the discharge line must be suitable for the quantity of steam produced. Exact dimensions can be found in the technical dimension and data sheet.
- For lengths of over 2 m/78.74 inch, install condensate drains in discharge lines.
- When installing a flue, make sure that the amount of air removed from the oven is returned to the steam extraction.
For further information, please see 'Building work' – 'Building ventilation'.
- If it is impossible to discharge the steam to the outside for structural reasons, install a vapour hood with steam condenser on the unit.



CAUTION: LOW ATMOSPHERIC PRESSURE CAN CAUSE MATERIAL DAMAGE!

Low ambient pressure at the unit can lead to backflow through the baking chamber or vapour hood discharge line. This can affect product quality.

- Check the pressure at the unit on a regular basis.
- Ensure the area around the unit is sufficiently ventilated.
- Make sure that waste air can escape freely to the outside.
- When connected to the flue, protect the waste air outlet from the influences of weather.
- Contact qualified personnel if required.



- 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

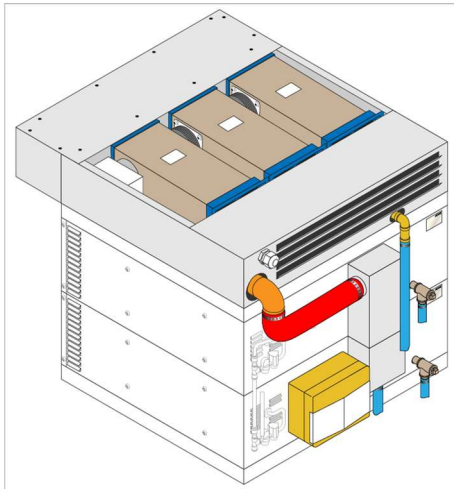
**RISK OF INJURY FROM HOT STEAM!**

Escaping steam can cause injury and damage.

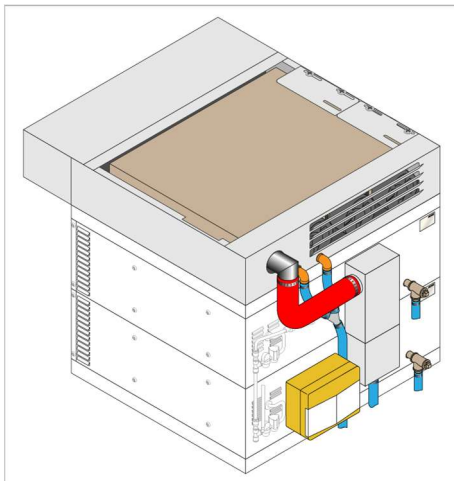
- The outlet opening must meet the applicable national and regional building regulations.

7.2.2. Steam discharge – versions

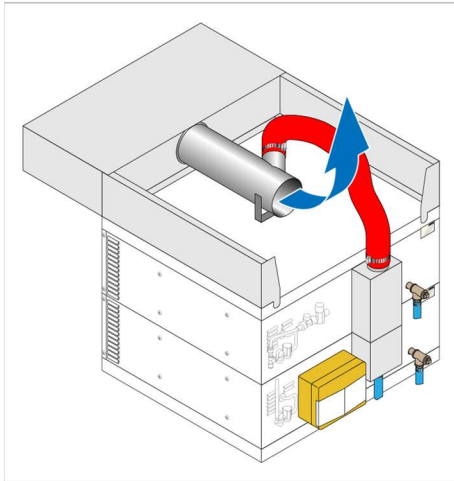
SK-M steam condenser



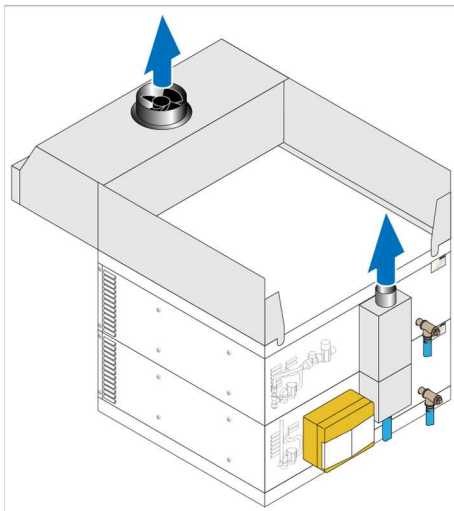
SK-II steam condenser - For the US/Canada



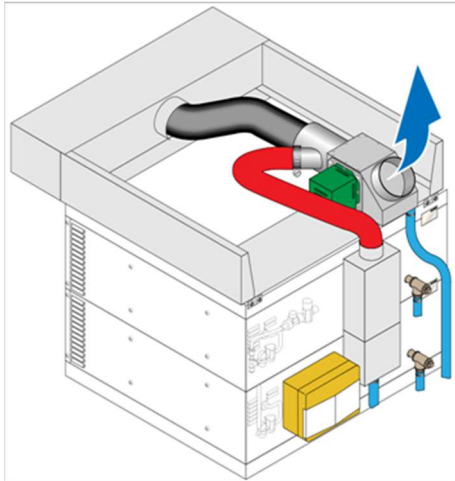
Vapour hood (190) with fan



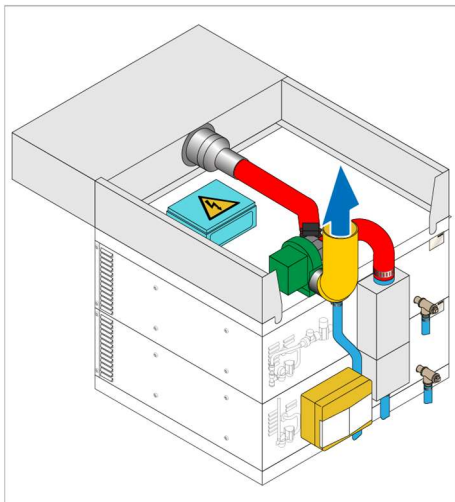
Vapour hood (470) with fan



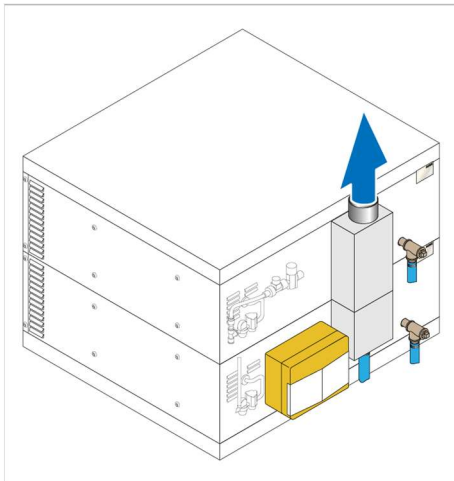
Vapour hood with condensate container



Vapour hood with dynamic ventilation



In the site (owner-operator) ventilation system



7.2.3. Installation materials

Silicone tube (MIWE material number: 506582.20)	Description
Diameter	80 mm/3.15 inch
Design	Steam-tight, corrosion-resistant, non-flammable and chemically resistant
Material	<ul style="list-style-type: none"> • Helix: spring steel wire • Wall: silicone-coated glass fabric, double-layered • Cord: fibreglass yarn
Length	Depends on installation conditions
Temperature resistance	-80°C/-112°F to +300°C/572°F

Repair tape, self-amalgamating (MIWE material number: 506597.10)	Description
Band width	50 mm/1.97 inch
Design	Self-amalgamating, abrasion-resistant, water-resistant, acid-proof and chemically resistant
Total thickness	0,75 mm/0.03 inch
Temperature resistance	-65°C/-85°F to +260°C/500°F
Length	600 mm/23.62 inch

7.3. Overpressure / negative pressure

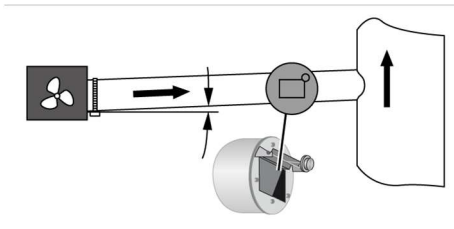


CAUTION: OVERPRESSURE AND NEGATIVE PRESSURE CAN CAUSE MATERIAL DAMAGE!

Overpressure and negative pressure due to excessively long discharge lines, incorrect discharge line diameters or backflow can cause damage to the unit and/or lead to poor baking results.

- A negative pressure of 0.05 mbar/0.0007 psi is normal
- A negative pressure of 0.2–0 mbar/0.0029–0 psi is permissible for a short period of time
- Make sure that 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



MIWE's recommendation

Install a draught control valve when the exhaust air is directed into an extraction flue. This avoids pressure fluctuations in the system.

7.4. Moisture produced per hour during the baking process

Varying levels of moisture are produced during baking depending on the product, quantity of dough and operating mode and have to be extracted. These levels of moisture are the basis for calculating air conditioning and ventilation system specifications.



NOTICE!

The amount of moisture is dependent on

- the current power consumption.
- the opening of the steam valve.

As a guideline, 6 m³/h per m² (211.89 ft³/h per sq ft) is recommended.

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

6 m³ moisture per hour x baking area in m²

Example

Oven type	Amount of moisture
CO 2.0608	0,96 m ² x 6 m ³ /h x m ² = 5,8 m ³ /h (10.33 sq ft x 211.89 ft ³ /h x sq ft = 204.82 ft ³)