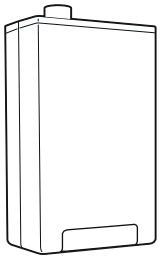
Installation and operation manual

Daikin Altherma hybrid monobloc – Gas boiler module



EHY2KOMB28AA
EHY2KOMB32AA

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1 About the product

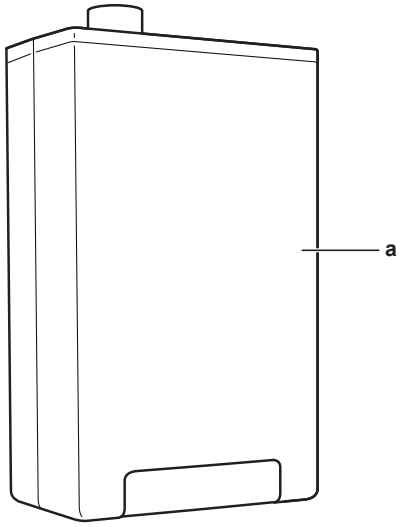
Especially for UK:

The Benchmark Scheme

Benchmark places responsibilities on both manufacturers and installers. The purpose is to ensure that customers are provided with the correct equipment for their needs, that it is installed, commissioned and serviced in accordance with the manufacturer's instructions by competent persons and that it meets the

requirements of the appropriate Building Regulations. The Benchmark Checklist can be used to demonstrate compliance with Building Regulations and should be provided to the customer for future reference.

Installers are required to carry out installation, commissioning and servicing work in accordance with the Benchmark Code of Practice which is available from the Heating and Hotwater Industry Council who manage and promote the Scheme. Visit http://www.centralheating.co.uk for more information.



a Gas boiler module

INFORMATION

This product is intended for domestic use only.

2 About the documentation

2.1 About this document

INFORMATION

This appliance is not intended for use by persons, including children, with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.

Children should be supervised to ensure that they do not play with the appliance.

Target audience

Authorised installers

Documentation set

This document is part of a documentation set. The complete set consists of:

- **General safety precautions:**
  - Safety instructions that you must read before installing
  - Format: Paper (in the box of the outdoor unit)
- **Operation manual:**
  - Quick guide for basic usage
  - Format: Paper (in the box of the outdoor unit)
- **User reference guide:**
  - Detailed step-by-step instructions and background information for basic and advanced usage
  - Format: Digital files on http://www.daikineurope.com/support-and-manuals/product-information/
- **Installation manual – Heat pump module:**
  - Installation instructions
  - Format: Paper (in the box of the outdoor unit)
- **Installation and operation manual – Gas boiler module:**
  - Installation and operation instructions
  - Format: Paper (in the box of the gas boiler)
- **Installer reference guide:**
  - Preparation of the installation, good practices, reference data,…
  - Format: Digital files on http://www.daikineurope.com/support-and-manuals/product-information/
- **Addendum book for optional equipment:**
  - Additional info about how to install optional equipment
  - Format: Paper (in the box of the outdoor unit) + Digital files on http://www.daikineurope.com/support-and-manuals/product-information/

Latest revisions of the supplied documentation may be available on the regional Daikin website or via your dealer.

The original documentation is written in English. All other languages are translations.

Technical engineering data

- A **subset** of the latest technical data is available on the regional Daikin website (publicly accessible).
- The **full set** of latest technical data is available on the Daikin extranet (authentication required).

3 General safety precautions

3.1 About the documentation

- The original documentation is written in English. All other languages are translations.
- The precautions described in this document cover very important topics, follow them carefully.
- The installation of the system, and all activities described in the installation manual and the installer reference guide MUST be performed by an authorised installer.

3.1.1 Meaning of warnings and symbols

DANGER

Indicates a situation that results in death or serious injury.

DANGER: RISK OF ELECTROCUTION

Indicates a situation that could result in electrocution.

DANGER: RISK OF BURNING

Indicates a situation that could result in burning because of extreme hot or cold temperatures.

DANGER: RISK OF EXPLOSION

Indicates a situation that could result in explosion.

DANGER: RISK OF POISONING

Indicates a situation that could result in poisoning.

WARNING

Indicates a situation that could result in death or serious injury.

WARNING: PROTECT AGAINST FROST

Indicates a situation that could result in equipment or property damage.

WARNING: FLAMMABLE MATERIAL

CAUTION

Indicates a situation that could result in minor or moderate injury.

NOTICE

Indicates a situation that could result in equipment or property damage.

INFORMATION

Indicates useful tips or additional information.

Symbol	Explanation
	Before installation, read the installation and operation manual, and the wiring instruction sheet.
	Before performing maintenance and service tasks, read the service manual.
	For more information, see the installer and user reference guide.

3.2 For the installer

3.2.1 General

If you are NOT sure how to install or operate the unit, contact your dealer.

NOTICE

Improper installation or attachment of equipment or accessories could result in electric shock, short-circuit, leaks, fire or other damage to the equipment. Only use accessories, optional equipment and spare parts made or approved by Daikin.

WARNING

Make sure installation, testing and applied materials comply with applicable legislation (on top of the instructions described in the Daikin documentation).

CAUTION

Wear adequate personal protective equipment (protective gloves, safety glasses,…) when installing, maintaining or servicing the system.

WARNING

Tear apart and throw away plastic packaging bags so that nobody, especially children, can play with them. Possible risk: suffocation.

DANGER: RISK OF BURNING

- Do NOT touch the refrigerant piping, water piping or internal parts during and immediately after operation. It could be too hot or too cold. Give it time to return to normal temperature. If you must touch it, wear protective gloves.
- Do NOT touch any accidental leaking refrigerant.

WARNING

Provide adequate measures to prevent that the unit can be used as a shelter by small animals. Small animals that make contact with electrical parts can cause malfunctions, smoke or fire.

CAUTION

Do NOT touch the air inlet or aluminium fins of the unit.

NOTICE

- Do NOT place any objects or equipment on top of the unit.
- Do NOT sit, climb or stand on the unit.

NOTICE

Works executed on the outdoor unit are best done under dry weather conditions to avoid water ingress.

In accordance with the applicable legislation, it might be necessary to provide a logbook with the product containing at least: information on maintenance, repair work, results of tests, stand-by periods,…

Also, at least, following information MUST be provided at an accessible place at the product:

- Instructions for shutting down the system in case of an emergency
- Name and address of fire department, police and hospital
- Name, address and day and night telephone numbers for obtaining service

In Europe, EN378 provides the necessary guidance for this logbook.

For Swiss market, domestic hot water operation should only be prepared in combination with a tank. Instant domestic hot water by the gas boiler is NOT allowed. Make the correct settings as described in this manual.

Please follow following Swiss regulations and directives:

- SVGW-gas principles G1 for gas installations,
- SVGW-gas principles L1 for liquid gas installations,
- cautional instances regulations (e.g., fire regulation).

3.2.2 Installation site

- Provide sufficient space around the unit for servicing and air circulation.
- Make sure the installation site withstands the weight and vibration of the unit.
- Make sure the area is well ventilated. Do NOT block any ventilation openings.
- Make sure the unit is level.
- If the wall on which the unit is mounted is flammable, a non-flammable material must be placed between the wall and the unit. Do the same for all locations through which the flue piping passes.
- ONLY operate the gas boiler if a sufficient supply of combustion air is ensured. In case of a concentric air/flue gas system dimensioned according to the specifications of this manual, this is fulfilled automatically and there are no other conditions for the equipment installation room. This method of operation applies exclusively.
- This gas boiler is NOT designed for room air dependent operation.
- Store flammable fluids and materials at least 1 meter away from the gas boiler.

Do NOT install the unit in the following places:

- In potentially explosive atmospheres.

- In places where there is machinery that emits electromagnetic waves. Electromagnetic waves may disturb the control system, and cause malfunction of the equipment.
- In places where there is a risk of fire due to the leakage of flammable gases (example: thinner or gasoline), carbon fibre, ignitable dust.
- In places where corrosive gas (example: sulphurous acid gas) is produced. Corrosion of copper pipes or soldered parts may cause the refrigerant to leak.
- In bathrooms.
- In places where frost is possible. The ambient temperature around the gas boiler should be >5°C.

3.2.3 Water

If applicable. See the installation manual or installer reference guide of your application for more information.

NOTICE

Make sure water quality complies with EU directive 98/83 EC.

Avoid damages caused by deposits and corrosion. To prevent corrosion products and deposits, observe the applicable regulations of technology.

Measures for desalination, softening or hardness stabilization are necessary if the filling and top-up water have a high total hardness (>3 mmol/l–sum of the calcium and magnesium concentrations, calculated as calcium carbonate).

Using filling water and top-up water which does NOT meet the stated quality requirements can cause a considerably reduced service life of the equipment. The responsibility for this is entirely that of the user.

3.2.4 Electrical

DANGER: RISK OF ELECTROCUTION

- Turn OFF all power supply before removing the switch box cover, connecting electrical wiring or touching electrical parts.
- Disconnect the power supply for more than 1 minute, and measure the voltage at the terminals of main circuit capacitors or electrical components before servicing. The voltage MUST be less than 50 V DC before you can touch electrical components. For the location of the terminals, see the wiring diagram.
- Do NOT touch electrical components with wet hands.
- Do NOT leave the unit unattended when the service cover is removed.

WARNING

If NOT factory installed, a main switch or other means for disconnection, having a contact separation in all poles providing full disconnection under overvoltage category III condition, MUST be installed in the fixed wiring.

WARNING

- ONLY use copper wires.
- Make sure the field wiring complies with the applicable legislation.
- All field wiring MUST be performed in accordance with the wiring diagram supplied with the product.
- NEVER squeeze bundled cables and make sure they do NOT come in contact with the piping and sharp edges. Make sure no external pressure is applied to the terminal connections.
- Make sure to install earth wiring. Do NOT earth the unit to a utility pipe, surge absorber, or telephone earth. Incomplete earth may cause electrical shock.
- Make sure to use a dedicated power circuit. NEVER use a power supply shared by another appliance.
- Make sure to install the required fuses or circuit breakers.
- Make sure to install an earth leakage protector. Failure to do so may cause electric shock or fire.
- When installing the earth leakage protector, make sure it is compatible with the inverter (resistant to high frequency electric noise) to avoid unnecessary opening of the earth leakage protector.

CAUTION

When connecting the power supply, the earth connection must be made before the current-carrying connections are established. When disconnecting the power supply, the current-carrying connections must be separated before the earth connection is. The length of the conductors between the power supply stress relief and the terminal block itself must be as such that the current-carrying wires are tautened before the earth wire is in case the power supply is pulled loose from the stress relief.

NOTICE

Precautions when laying power wiring:

- Do NOT connect wiring of different thicknesses to the power terminal block (slack in the power wiring may cause abnormal heat).
- When connecting wiring which is the same thickness, do as shown in the figure above.
- For wiring, use the designated power wire and connect firmly, then secure to prevent outside pressure being exerted on the terminal board.
- Use an appropriate screwdriver for tightening the terminal screws. A screwdriver with a small head will damage the head and make proper tightening impossible.
- Over-tightening the terminal screws may break them.

Install power cables at least 1 metre away from televisions or radios to prevent interference. Depending on the radio waves, a distance of 1 metre may not be sufficient.

WARNING

- After finishing the electrical work, confirm that each electrical component and terminal inside the electrical components box is connected securely.
- Make sure all covers are closed before starting up the unit.

NOTICE

Only applicable if the power supply is three-phase, and the compressor has an ON/OFF starting method.

If there exists the possibility of reversed phase after a momentary black out and the power goes on and off while the product is operating, attach a reversed phase protection circuit locally. Running the product in reversed phase can break the compressor and other parts.

3.2.5 Gas

The gas boiler is factory-set to:

- the type of gas quoted on the type identification plate or on the setting type identification plate,
- the gas pressure quoted on the type identification plate.

Operate the unit ONLY with the gas type and gas pressure indicated on these type identification plates.

Installation and adaptation of the gas system MUST be conducted by:

- personnel qualified for this work,
- in compliance with valid gas installation related guidelines,
- in accordance with applicable regulations of the gas supply company,
- In accordance with local and national regulations.

Boilers that use natural gas MUST be connected to a governed meter.

Boilers that use liquid petroleum gas (LPG) MUST be connected to a regulator.

The size of the gas supply pipe should under no circumstance be less than 22 mm.

The meter or regulator and pipe work to the meter MUST be checked preferably by the gas supplier. This is to ensure that the equipment works good and meets the gas flow and pressure requirements.

DANGER

If you smell gas:

- call immediately your local gas supplier and your installer,
- call the suppliers's number on the side of the LPG tank (if applicable),
- turn off the emergency control valve at the meter/ regulator,
- do NOT turn electrical switches ON or OFF,
- do NOT strike matches or smoke,
- put out naked flames,
- open doors and windows immediately,
- keep people away from the affected area.

3.2.6 Gas exhaust

Flue systems must NOT be modified or installed in any way other than as described in the fitting instructions. Any misuses or unauthorized modifications to the appliance, flue or associated components and systems could invalidate the warranty. The manufacturer accepts no liability arising from any such actions, excluding statutory rights.

It is NOT allowed to combine flue system parts purchased from different suppliers.

3.2.7 Local legislation

See the local and national regulations.

Local regulations for UK

It is law that all gas appliances are installed by a gas safe registered competent engineer and in accordance with the following recommendations:

- Current Gas Safety (Installation and Use) Regulations
- All current building regulations
- Building Standards (Scotland) Consolidated
- This appliance MUST be installed in accordance with the Gas (Safety and Use) Regulations, current Building Regulations, Building Standards (Scotland), I.S.813 Installation of Gas Appliances (Ireland), IEE Wiring Regulations (BS 7671), Health and Safety Document No. 635 (Electricity at Work Regulations) and Local Water Authority Bye Laws
- UK Water Regulations and Bye Laws
- Health & Safety

The installation MUST comply with the following British Standards codes of practice:

- BS 5440-1: 2008 Flueing and ventilation for gas appliances of rated input not exceeding 70 kW net (1st, 2nd and 3rd family gases)
- BS 5440-2: 2009 Flueing and ventilation for gas appliances of rated input not exceeding 70 kW net (1st, 2nd and 3rd family gases)
- BS 5546: 2010 Specification for installation and maintenance of gas-fired water-heating appliances of rated input not exceeding 70 kW net
- BS 5549: 1990 Forced circulation hot water systems.
- BS 6700: 2006 + A1: 2009 Design, installation, testing and maintenance of services supplying water for domestic use within buildings and their curtilages - Specification
- BS 6798: 2014 Specification for selection, installation, inspection, commissioning, servicing and maintenance of gas-fired boilers of rated input not exceeding 70 kW net
- BS 6891: 2015 Specification for the installation and maintenance of low pressure gas installation pipework of up to 35 mm (R1¼) on premises
- BS 7593: 2006 Code of practice for treatment of water in domestic hot water space heating systems
- BS 7671: 2018 Requirements for electrical installations. IET wiring regulations
- BS 7074: 1 Code of practice for domestic and hot water supply
- EN12828: 2014 Space heating for domestic premises

Potable water: all seals, joints and compounds (including flux and solder) and components used as part of the secondary domestic water system MUST be approved by WRAS.

4 About the box

4.1 Gas boiler

4.1.1 Symbols on the package

This is a fragile piece of equipment: Please provide a dry storage space for the unit.

This is a fragile piece of equipment: Please be very careful not to drop.

Store the unit in a flat position as indicated on the box.

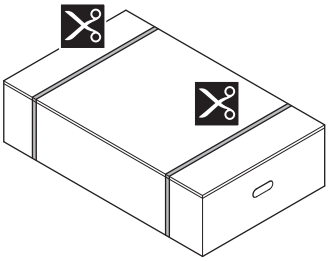
No more than five boxes should be stacked on top of each other.

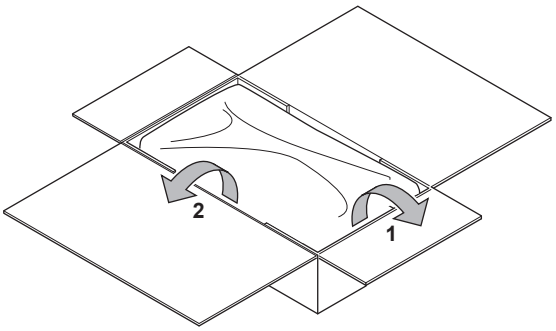
When stacking 6 boxes on one pallet, no more than 2 pallets should be stacked on top of each other.

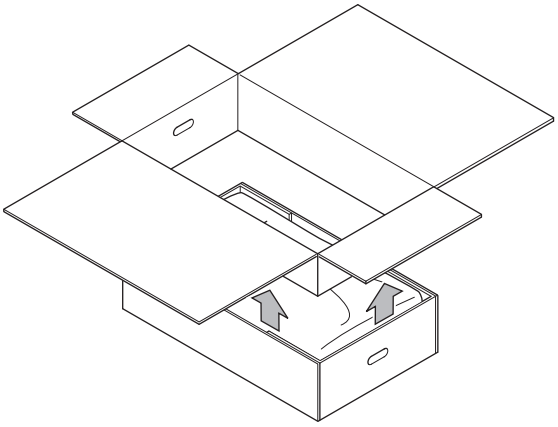
When stacking 4 boxes on one pallet, no more than 3 pallets should be stacked on top of each other.

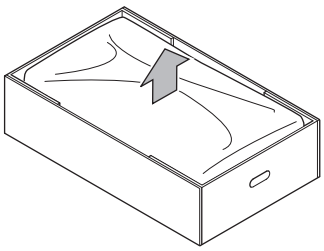
4.1.2 To unpack the gas boiler

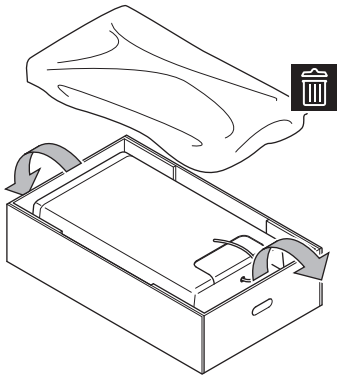
Before unpacking, move the gas boiler as close as possible to its installation position.

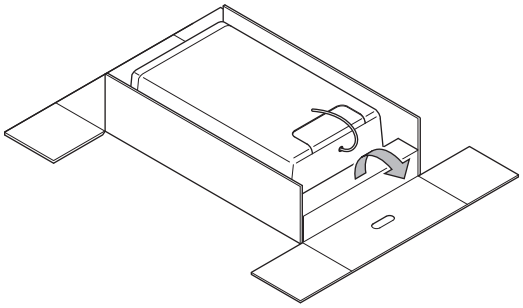










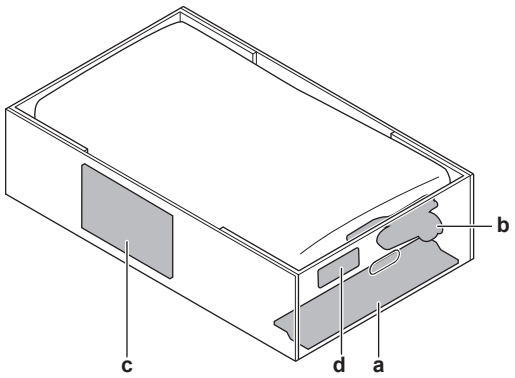


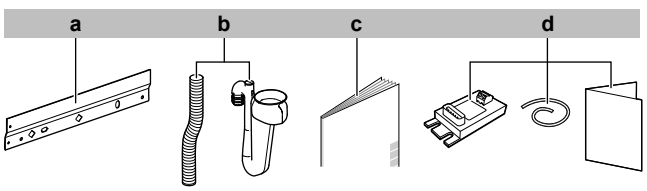
WARNING

Tear apart and throw away plastic packaging bags so that nobody, especially children, can play with them. Possible risk: suffocation.

4.1.3 To remove the accessories from the gas boiler

1 Remove the accessories.





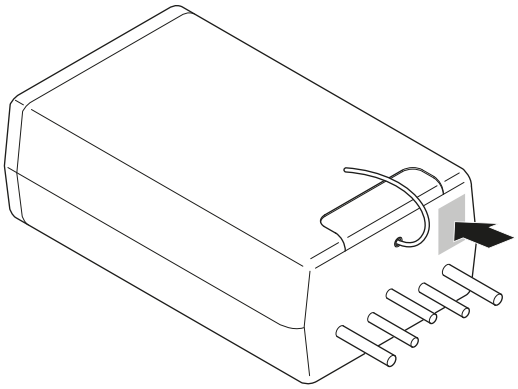
a Mounting strip
b Condensate trap
c Installation and operation manual
d Current loop module, cable and installation manual

5 About the units and options

5.1 Identification

5.1.1 Identification label: Gas boiler

Location



Model identification

Unit detail	Description
******-yymm******	Product code-Serial No. yy = year of production, mm = month of production
PIN	Product Identification Number

Unit detail	Description
	Data related to domestic hot water
	Data related to space heating
	Information regarding electrical power supply (Voltage, mains frequency, elmax, IP-class)
PMS	Permissible overpressure in space heating circuit
PWS	Permissible overpressure in domestic hot water circuit
Qn HS	Input related to gross caloric value in kilowatts
Qn Hi	Input related to net caloric value in kilowatts
Pn	Output in kilowatts
DE, FR, GB, IT, NL	Countries of Destination (EN 437)
I2E(s), I2H, IIELL3P, II2H3P, II2Esi3P	Approved unit categories (EN 437)
G20-20 mbar G25-25 mbar	Gas group and gas connection pressure as set at the factory (EN 437)
B23, …., C93(x)	Approved flue gas category (EN 15502)
Tmax	Maximum flow temperature in °C
IPX4D	Electrical protection class

5.2 Combining units and options

5.2.1 Possible options for the gas boiler

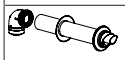
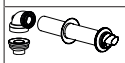
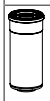
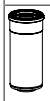
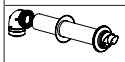
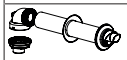
Main options

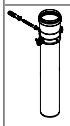
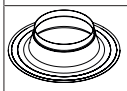
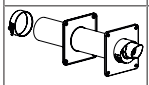
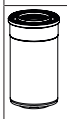
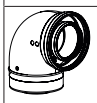
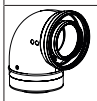
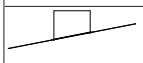
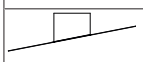
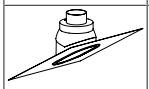
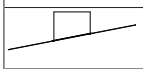
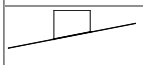
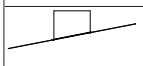
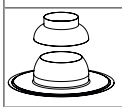
Part	EHY2KOMB28AA	EHY2KOMB32AA
Boiler cover plate		
Cover plate to protect the piping and valves of the gas boiler. For installation instructions, see the installation manual of the cover plate(*).	EKHY093467	
Gas conversion kit G25		
Kit for the conversion of the gas boiler for use with gas type G25.	EKPS076217	EKPS076227
Gas conversion kit G31		
Kit for the conversion of the gas boiler for use with gas type G31	EKHY075867	EKHY075787
Dual pipe conversion kit		
Kit for the conversion of a concentric flue gas system to a dual pipe system. For installation instructions, see the installation manual of the dual pipe conversion kit	EKHY090707	
80/125 concentric connection kit		
Kit for the conversion of 60/100 concentric flue gas connections to 80/125 concentric flue gas connections. For installation instructions, see the installation manual of the concentric connection kit.	EKHY090717	
B-packs		
An integrated solution for expansion vessel to make filling easier. Required installation space is limited(*).	EKFJM1A EKFJM2A EKFJM3A EKFJM6A	EKFJL1A EKFJL2A EKFJL3A EKFJL6A
Valve kit		
To easier connect pipes and valves. For installation instruction, see the manual of the kit.	EKVK4A EKVK6A	
Filling loop set		

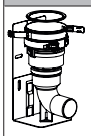
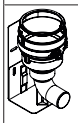
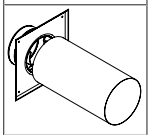
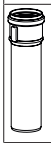
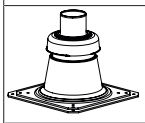
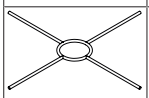
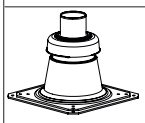
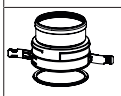
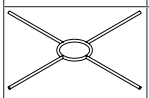
Part	EHY2KOMB28AA	EHY2KOMB32AA
To fill and top up the space heating system.	EKFL1A	

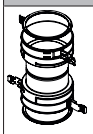
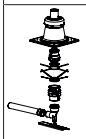
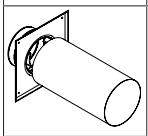
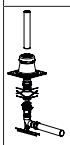
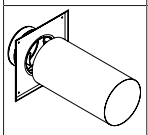
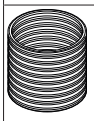
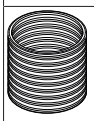
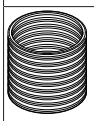
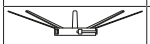
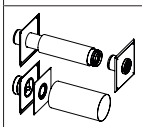
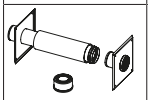
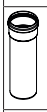
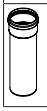
(*) The boiler cover plate cannot be used with B-packs.

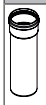
Other options

Accessories	Part number	Description
	EKFGP6837	Roof terminal PP/GLV 60/100 AR460
	EKFGS0518	Weather slate steep Pb/GLV 60/100 18°-22°
	EKFGS0519	Weather slate steep Pb/GLV 60/100 23°-17°
	EKFGP7910	Weather slate steep PF 60/100 25°-45°
	EKFGS0523	Weather slate steep Pb/GLV 60/100 43°-47°
	EKFGS0524	Weather slate steep Pb/GLV 60/100 48°-52°
	EKFGS0525	Weather slate steep Pb/GLV 60/100 53°-57°
	EKFGP1296	Weather slate flat Aluminium 60/100 0°-15°
	EKFGP6940	Weather slate flat Aluminium 60/100
	EKFGP2978	Wall terminal kit PP/GLV 60/100
	EKFGP2977	Wall terminal kit low profile PP/GLV 60/100
	EKFGP4651	Extension PP/GLV 60/100×500 mm
	EKFGP4652	Extension PP/GLV 60/100×1000 mm
	EKFGP4664	Elbow PP/GLV 60/100 30°
	EKFGP4661	Elbow PP/GLV 60/100 45°
	EKFGP4660	Elbow PP/GLV 60/100 90°
	EKFGP4667	Meas. tee with inspection panel PP/GLV 60/100
	EKFGP4631	Wall bracket Ø100
	EKFGP1292	Wall terminal Kit PP/GLV 60/100
	EKFGP1293	Wall terminal kit low profile PP/GLV 60/100
	EKFGP1294	Plume management kit 60 (UK only)
	EKFGP1295	Flue deflector 60 (UK only)
	EKFGP1284	PMK elbow 60 90 (UK only)

Accessories	Part number	Description
	EKFGP1285	PMK elbow 60 45° (2 pieces) (UK only)
	EKFGP1286	PMK extension 60 L=1000 includes bracket (UK only)
	EKFGW5333	Weather slate flat aluminium 80/125
	EKFGW6359	Wall terminal kit PP/GLV 80/125
	EKFGP4801	Extension PP/GLV 80/125×500 mm
	EKFGP4802	Extension PP/GLV 80/125×1000 mm
	EKFGP4814	Elbow PP/GLV 80/125 30°
	EKFGP4811	Elbow PP/ALU 80/125 45°
	EKFGP4810	Elbow PP/ALU 80/125 90°
	EKFGP4820	Inspection elbow Plus PP/ALU 80/125 90° EPDM
	EKFGP6864	Roof Terminal PP/GLV 80/125 AR300 RAL 9011
	EKFGT6300	Weather slate steep Pb/GLV 80/125 18°-22°
	EKFGT6301	Weather slate steep Pb/GLV 80/125 23°-27°
	EKFGP7909	Weather slate steep PF 80/125 25°-45° RAL 9011
	EKFGT6305	Weather slate steep Pb/GLV 80/125 43°-47°
	EKFGT6306	Weather slate steep Pb/GLV 80/125 48°-52°
	EKFGT6307	Weather slate steep Pb/GLV 80/125 53°-57°
	EKFGP1297	Weather slate flat aluminium 80/125 0°-15°
	EKFGP6368	Tee flex 100 boiler connection set 1

Accessories	Part number	Description
	EKFGP6354	Flex 100-60 + support elbow
	EKFGP6215	Tee flex 130 boiler connection set 1
	EKFGS0257	Flex 130-60 + support elbow
	EKFGP4678	Chimney connection 60/100
	EKFGP5461	Extension PP 60×500
	EKFGP5497	Chimney top PP 100 with included flue pipe
	EKFGP6316	Adapter flex-fixed PP 100
	EKFGP6337	Support bracket top inox Ø100
	EKFGP6346	Extension flex PP 100 L=10 m
	EKFGP6349	Extension flex PP 100 L=15 m
	EKFGP6347	Extension flex PP 100 L=25 m
	EKFGP6325	Connector flex-flex PP 100
	EKFGP5197	Chimney top PP 130 with included flue pipe
	EKFGS0252	Adapter flex-fixed PP 130
	EKFGP6353	Support bracket top inox Ø130
	EKFGS0250	Extension flex PP 130 L=130 m

Accessories	Part number	Description
	EKFGP6366	Connector flex-flex PP 130
	EKFGP1856	Flex kit PP Ø60-80
	EKFGP4678	Chimney connection 60/100
	EKFGP2520	Flex kit PP Ø80
	EKFGP4828	Chimney connection 80/125
	EKFGP6340	Extension Flex PP 80 L=10 m
	EKFGP6344	Extension Flex PP 80 L=15 m
	EKFGP6341	Extension Flex PP 80 L=25 m
	EKFGP6342	Extension Flex PP 80 L=50 m
	EKFGP6324	Connector-flex-flex PP 80
	EKFGP6333	Spacer PP 80-100
	EKFGP4481	Fixation Ø100
	EKFGV1101	Chimney connection 60/10 air intake Dn.80 C83
	EKFGV1102	Connection set 60/10-60 Flue/ Air intake Dn.80 C53
	EKFGW4001	Extension P BM-Air 80×500
	EKFGW4002	Extension P BM-Air 80×1000

Accessories	Part number	Description
	EKFGW4004	Extension P BM-Air 80×2000
	EKFGW4085	Elbow PP BM-Air 80 90°
	EKFGW4086	Elbow PP BM-Air 80 45°
	EKGFP1289	Elbow PP/GALV 60/100 50°
	EKGFP1299	Kit horizontal low profile PP/ GLV 60/100 (UK only)

INFORMATION

For extra configuration options regarding the flue gas system, visit http://fluegas.daikin.eu/.

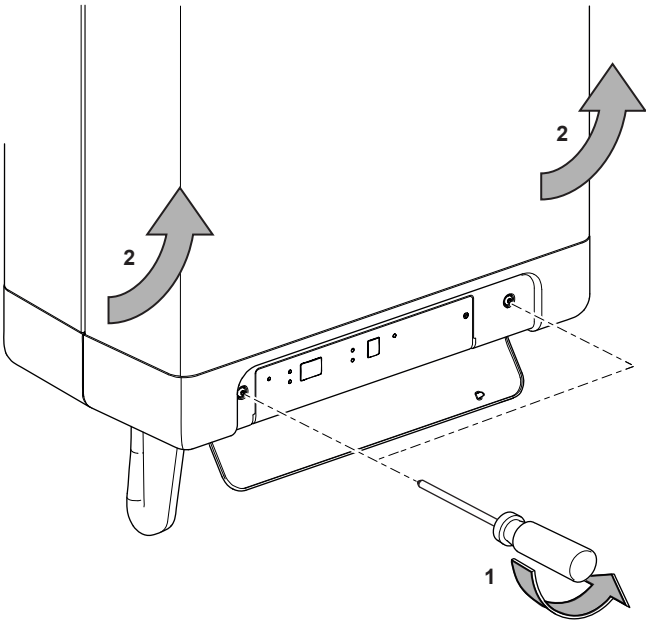
INFORMATION

For the installation of the flue and air supply duct material, see the manual included with the materials. Contact the manufacturer of the relevant flue and air supply duct materials for extensive technical information and specific assembly instructions.

6 Installation

6.1 Opening the unit

6.1.1 To open the gas boiler



1 Open the display cover.

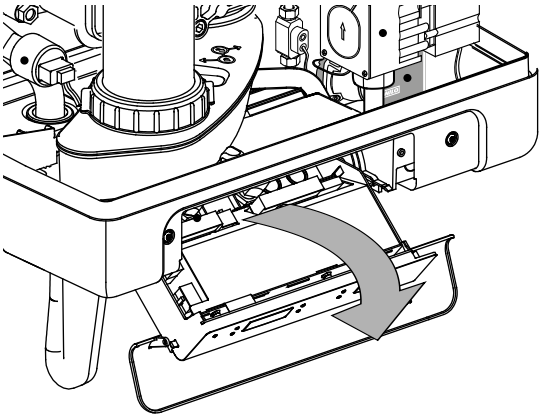
2 Unscrew both screws.

3 Tilt the front panel towards you and remove the front panel.

6.1.2 To open the switch box cover of the gas boiler

1 Open the gas boiler, see "6.1.1 To open the gas boiler" on page 11.

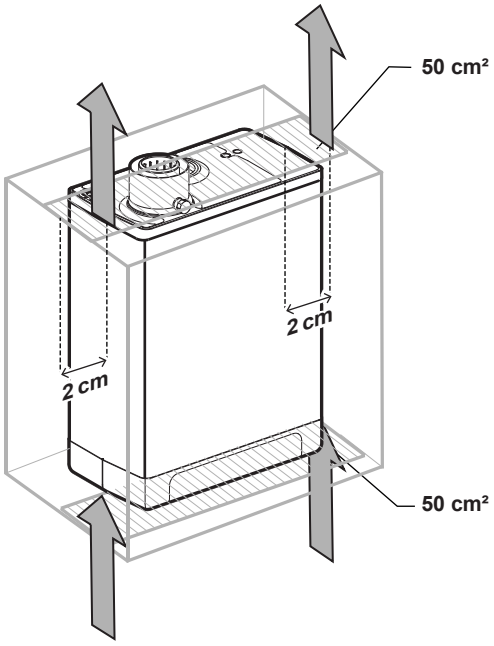
2 Pull the boiler controller unit forwards. The boiler controller will tip downwards to provide access.



6.2 Installation space

6.2.1 Installation space requirements

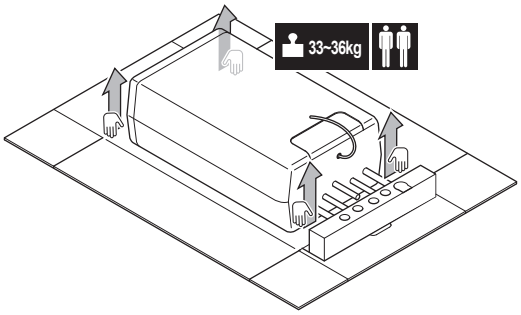
Within 1 meter of the unit, there must be an earthed wall plug. The unit can be placed between two kitchen cabinets, or inside a kitchen cabinet. Make sure there is sufficient ventilation at the bottom and the top of the unit. If the unit is installed inside a cabinet, 2 cm of free space at both sides of the unit and ventilation openings of at least 50 cm² are required. Make sure to have enough space above the unit. It must be possible to slightly tilt the top cover and perform maintenance.



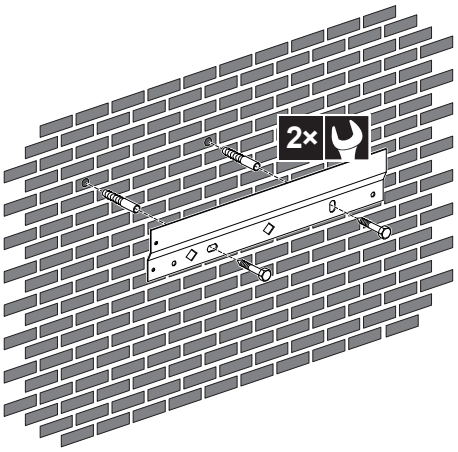
6.3 Mounting the gas boiler

6.3.1 To install the gas boiler

1 Lift the unit from the package.

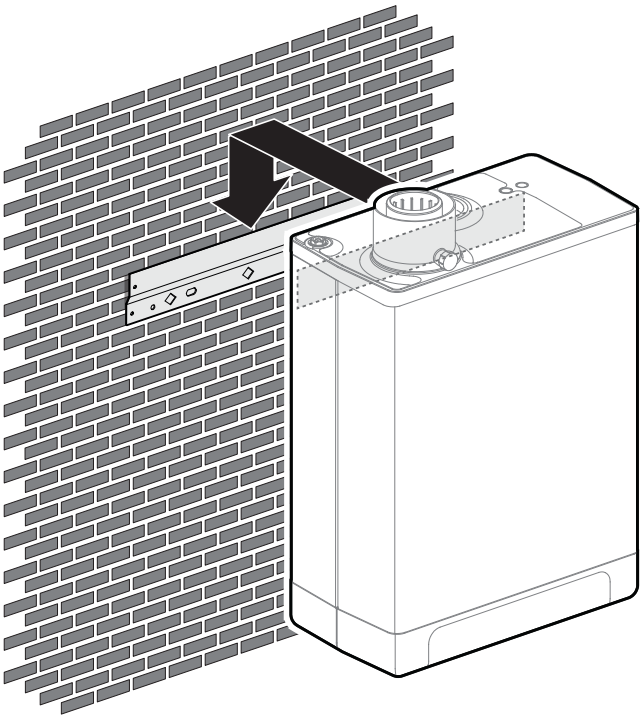


2 The bracket to mount the boiler on the heat pump module is an accessory of the gasboiler. Fix the wall bracket to the wall with 2 M8 bolts.



3 Lift the boiler. One person lifts the gas boiler on the left side (left hand on the top and right hand on the bottom) and another person lifts the gas boiler on the right side (left hand on the bottom and right hand on the top).

4 Tilt the top of the unit at the position of the wall bracket and slide the boiler downwards to fix the boiler bracket onto the wall bracket.



5 Make sure the gas boiler is fixed properly to the wall.

6.3.2 To install the condensate trap

INFORMATION

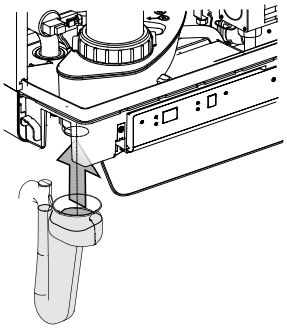
The boiler is provided with a Ø25 mm flexible pipe on the condensate trap.

Prerequisite: The boiler MUST be opened before installing the condensate trap.

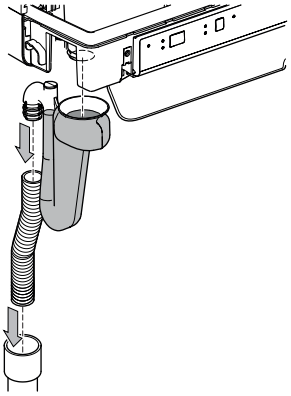
1 Fit the flexible tube (accessory) to the condensate trap outlet.

2 Fill the condensate trap with water.

3 Slide the condensate trap as far as possible upwards onto the condensate drain connector below the gas boiler.

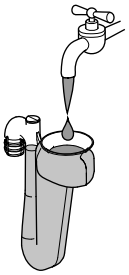


4 Connect the flexible tube (where applicable with the overflow pipe from the pressure relief valve) to the drain via an open connection.



WARNING

- ALWAYS fill the condensate trap with water and place it on the boiler before powering up the boiler. See illustration below.
- NOT placing or filling up the condensate trap may cause flue gases to come into the installation room and can lead to dangerous situations!
- In order to place the condensate trap, the front cover MUST be pulled forward or removed entirely.



NOTICE

It is recommended that any external condensate pipe is insulated and increased to Ø32 mm in order to prevent the condensate from freezing.

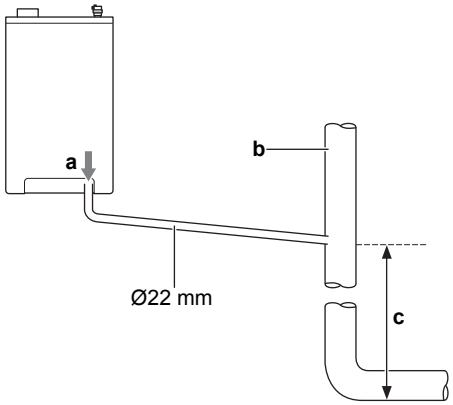
6.4 Condensate pipe work

INFORMATION

The condensate discharge system MUST be made of plastic, no other materials may be used. The discharge duct MUST have a minimum gradient of 5~20 mm/m. Condensate discharge via the gutter is NOT allowed due to risk of frost and the possible damage to the materials.

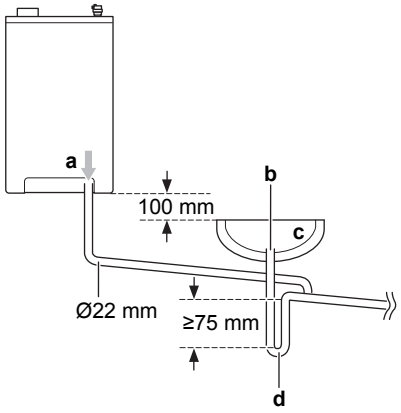
6.4.1 Internal connections

If possible, the condensate drain pipe should be routed and terminated so that the condensate drains away from the boiler under gravity to a suitable internal foul water discharge point such as an internal soil and vent stack. A suitable permanent connection to the foul waste pipe should be used.



a Condensate discharge from boiler
b Soil and vent stack
c Minimum 450 mm and up to 3 storeys

If the first option is NOT possible, an internal kitchen or bathroom waste pipe, washing machine pipe can be used. Make sure that the condensate drain pipe is connected downstream of the waste trap.

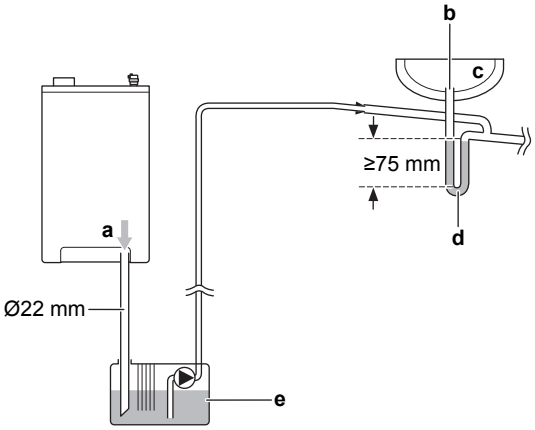


a Condensate discharge from boiler
b Soil and vent stack
c Sink or basin with integrate overflow
d 75 mm waste trap and air break

Condensate pump

Where gravity discharge to an internal termination is NOT physically possible or where very long internal runs of drainage pipe would be required to reach a suitable discharge point, condensate should be removed by using a proprietary condensate pump (field supply).

The pump outlet pipe should discharge to a suitable internal foul water discharge point such as an internal soil and vent stack, internal kitchen, bathroom waste pipe, or washing machine waste pipe. A suitable permanent connection to the foul waste pipe should be used.



a Condensate discharge from boiler
b Soil and vent stack
c Sink or basin with integrated overflow
d 75 mm waste trap and air break
e Condensate pump

6.4.2 External connections

If an externally condensate drainage pipe is used, following measures should be made to prevent freezing:

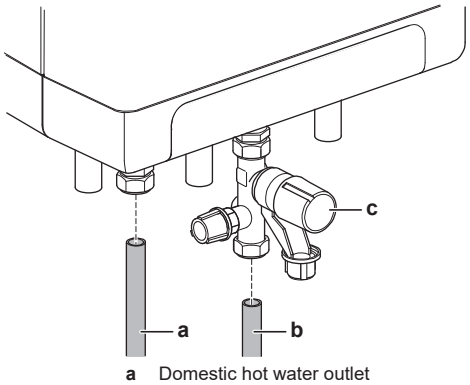
- The pipe should be run internally as far as possible before going to the outside. The pipe diameter should be increased to a minimum inner diameter of 30 mm (typically outer diameter of 32 mm) before it goes through the wall.
- The external run should be kept as short as possible, taking the most vertical route possible to the discharge point. Take into account that there are no horizontal sections in which condensate might collect.
- The external pipe should be insulated. Use a suitable waterproof and weather proof insulation ("Class O" pipe insulation is suitable for this purpose).
- The use of fittings and elbows should be kept to a minimum. Any internal burrs should be removed so that the internal pipe section is as smooth as possible.

6.5 Connecting the water piping

6.5.1 Connecting the water piping of the gas boiler

To connect the water piping for domestic hot water (not applicable for Switzerland)

1 Flush the installation thoroughly to clean.



a Domestic hot water outlet

b Cold water inlet
c Pressure relief valve (field supply)

2 Install a pressure relief valve according to local and national regulations (if required).

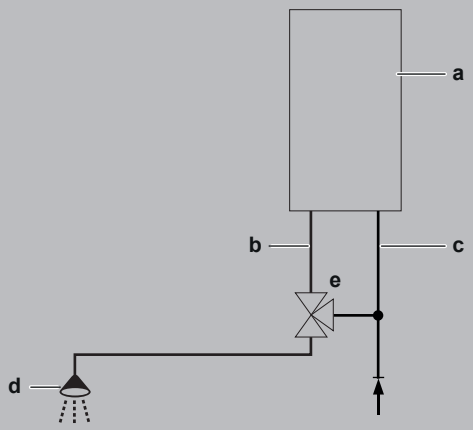
3 Connect the hot water connection (Ø15 mm).

4 Connect the main cold water connection (Ø15 mm).

DANGER: RISK OF BURNING

In case of high leaving water set points for space heating (either a high fixed set point or a high weather-dependent set point at low ambient temperatures), the heat exchanger of the boiler can be heated up to temperatures higher than 70°C.

In case of a tapping demand, it is possible that a small volume of water tapping (<0.3 l) has a temperature higher than 70°C. To prevent scalding, it is recommended to install a thermostatic valve according to the following schematic:



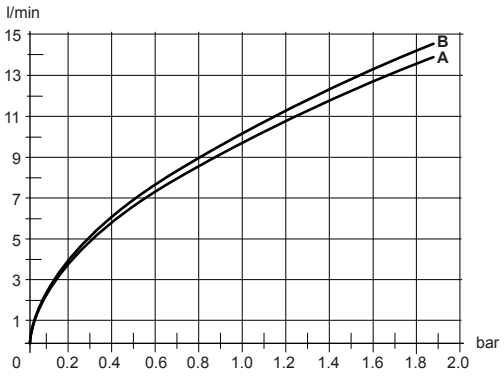
a=boiler, **b**=domestic hot water from the boiler, **c**=cold water inlet, **d**=shower, **e**=thermostatic valve (field supply)

To connect the water piping for domestic hot water (applicable for Switzerland)

For Switzerland, domestic hot water should be made by a domestic hot water tank. The domestic hot water tank must be installed with a 3-way valve to the space heating piping. Refer to the manual of the domestic hot water tank for more details.

Flow resistance graph for appliance domestic hot water circuit

Not applicable for Switzerland



A 28 kW
B 32 kW

The minimum flow for domestic hot water operation is 2 l/min. The minimum pressure is 0.1 bar. A low flow (<5 l/min) can reduce comfort. Make sure to set the setpoint high enough.

To connect the water piping for space heating

NOTICE

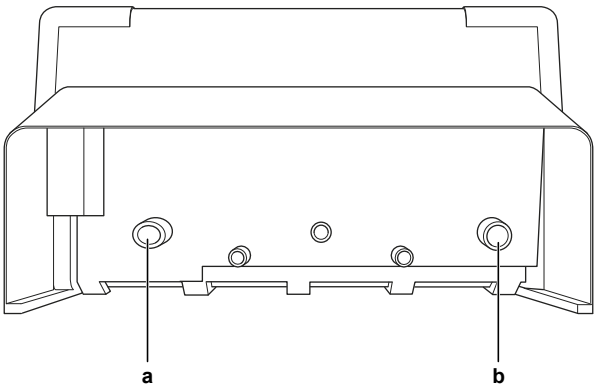
To prevent leakages, do NOT rotate existing connections.

NOTICE

Mount the pipes without tension to avoid ticking sounds from the pipes.

1 Rinse the space heating installation carefully.

2 Connect the space heating outlet (a) and space heating inlet (b) to their connections as indicated in the following illustration:



Fit the space heating installation with the following parts:

- A filling/draining tap in the space heating inlet, immediately underneath the unit.
- A draining tap at the lowest point of the installation.
- An overflow valve of 3 bar in the input pipe at a distance of no more than 500 mm from the unit. Between the unit and the overflow valve there may be no valve or constriction.
- An expansion vessel in the space heating inlet (in the B-pack or in the installation).
- If there are pipes running up, use a check valve within close distance of the unit. This prevents a thermosiphon effect from occurring during tap water operation.

Note that the optional valve kits EKVK4A and EKVK6A can also be used to connect the space heating installation.

NOTICE

Make sure that the straight brass fitting connections are tightened thoroughly to prevent leakage. Maximum torque is 30 N·m.

To fill the domestic water circuit of the gas boiler

1 Open the main tap to pressurize the hot water section.

2 Vent the exchanger and the pipe system by opening a hot water tap.

3 Leave the tap open until all air has disappeared from the system.

4 Check all connections for leaks including internal connections.

6.6 Connecting the electrical wiring

DANGER: RISK OF ELECTROCUTION

WARNING

ALWAYS use multicore cable for power supply cables.

WARNING

Prevent hazards due to inadvertent resetting of the thermal cut-out: power to this appliance MUST NOT be supplied through an external switching device, such as a timer, or connected to a circuit that is regularly turned ON and OFF by the utility.

NOTICE

Safety thermostat (normally closed contact). The outdoor unit does not contain a safety thermostat. Make sure to install a field-supplied safety thermostat in the heat emitter system according to the applicable legislation.

However, you cannot connect the feedback signal from the safety thermostat to the outdoor unit or gas boiler because there are no terminals for the feedback signal. Because of this, you also do not have to do any configuration on the outdoor unit or gas boiler.

In any case, to prevent unnecessary tripping of the safety thermostat, it is recommended that …

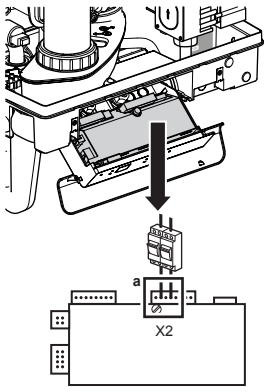
- … the safety thermostat is automatically resettable.
- … the safety thermostat has a maximum temperature variation rate of 2°C/min.
- … there is a minimum distance of 2 m between the safety thermostat and the motorised 3-way valve delivered with the domestic hot water tank.
- … the safety thermostat setpoint is at least 15°C greater than the maximum leaving water temperature setpoint.

6.6.1 To connect the main power supply of the gas boiler

1 Connect the power supply cable of the gas boiler to a fuse (a) (L: X2-2 (BRN), N: X2-4 (BLU)).

2 Connect the earthing of the gas boiler to an earthing terminal.

Result: The gas boiler performs a test. 2 appears on the service display. After the test, _ appears on the service display (wait mode). The pressure in bar is shown on the main display.



DANGER: RISK OF ELECTROCUTION

A fused spur or an unswitched socket MUST be located no more than 1 m from the appliance.

CAUTION

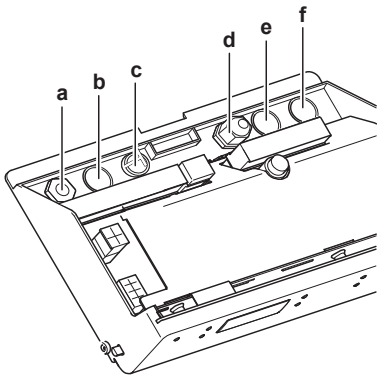
For installation in damp rooms, a fixed connection is obligatory. When working on the electrical circuit ALWAYS isolate the electric supply.

6.6.2 To connect the electrical wiring to the gas boiler

1 Open the gas boiler.

2 Open the switch box cover of the gas boiler.

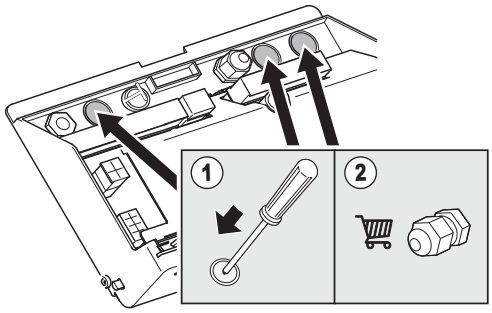
3 Enter the wiring through the bottom of the unit.



Part		Description	
Low voltage	a	Interconnection cable between outdoor unit and gas boiler (current loop PCB)(*)	Factory-mounted cable gland
	b	Domestic hot water tank thermistor	Knockout hole
	c	Room thermostat or heat pump convector	Rubber grommet
High voltage	d	Power supply	Factory-mounted cable gland
	e + f	3-way valve	Knockout hole

(*) For more information on the current loop installation, read the manual in the accessory bag of the current loop.

4 If needed, remove the knock-out holes with a screwdriver and attach the field supplied glands.



5 Connect the wiring to the appropriate terminals. See "13.2.1 Wiring diagram: Gas boiler" on page 37.

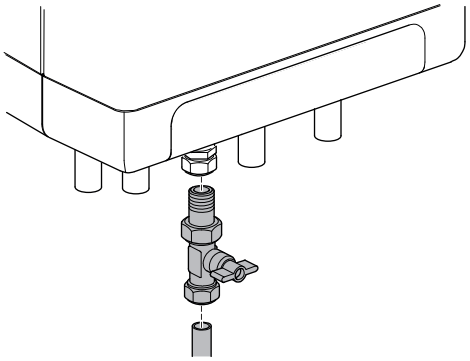
6 Close the switch box cover of the gas boiler.

7 Close the gas boiler.

6.7 Connecting the gas piping

6.7.1 To connect the gas pipe

1 Connect a gas valve to the 15 mm gas connection of the gas boiler and connect it to the field pipe according to local regulations.



2 Install a gas mesh filter in the gas connection if the gas may be contaminated.

3 Connect the gas boiler to the gas supply.

4 Check all parts for gas leaks on a pressure of maximum 50 mbar (500 mm H_2O). There may be no stress on the gas supply connection.

6.8 Connecting the boiler to the flue gas system

WARNING

- Make sure that the socket connections of the flue and air supply duct materials are correctly sealed. Improper fastening of the flue and air supply duct can lead to hazardous situations or result in personal injury.
- Check all flue components for tightness.
- Do NOT use screws or parkers to mount the flue system as leakage can occur.
- Sealing rubbers can be negatively affected when grease is applied, use water instead.
- Do NOT mix any components, materials or ways of coupling from different manufacturers.

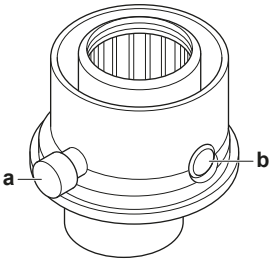
The gas boiler is delivered with a 60/100 concentric flue gas/air intake connection. Fit the concentric pipe carefully in the adapter. The built-in gaskets ensure there is an air tight seal.

An adapter piece 80/125 concentric connection is also available. Fit the concentric pipe carefully in the adapter. The built-in gaskets ensure there is an air tight seal.

INFORMATION

Carefully follow the instructions as described in the adapter set.

The concentric adapter piece is equipped with a measuring point for the gas exhaust and one for the air intake.



a Gas exhaust measuring point
b Air intake measuring point

The air supply and the flue pipe can also be connected separately as a dual pipe connection. An option to change the gas boiler from a concentric to a dual pipe connection is available.

6.8.1 To change the gas boiler to 80/125 concentric connection

The concentric connection can be changed from Ø60/100 to Ø80/125 by an adapter set.

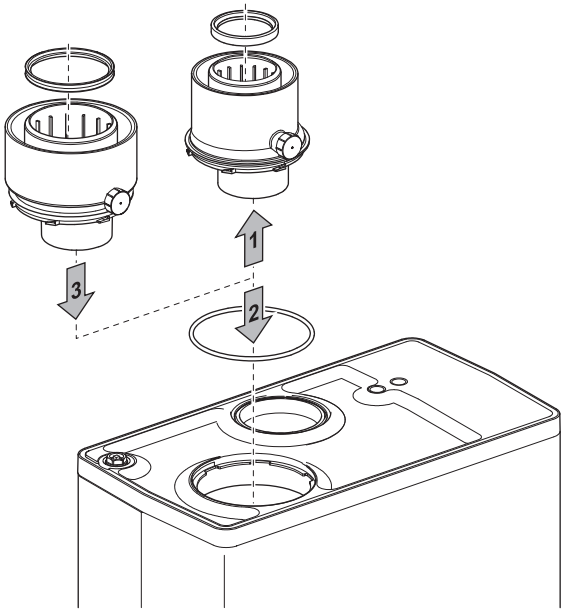
1 Remove the concentric pipe from the air supply and combustion gas pipe at the top of the gas boiler by turning counterclockwise.

2 Remove the O-ring from the concentric pipe and fit it around the flange of the concentric adapter Ø80/125.

3 Place the concentric adapter in the top of the appliance and turn it clockwise so that the measurement nipple points straight forward.

4 Fit the concentric pipe for the air supply and combustion gas flue into the adapter. The integral sealing ring ensures an airtight connection.

5 Check the connection of the internal flue pipe and the condensate collector. Make sure it is properly connected.



6.8.2 To change the 60/100 concentric connection to a dual pipe connection

The concentric connection can be changed from Ø60/100 to a dual pipe connection 2× Ø80 by an adapter set.

1 Remove the concentric pipe from the air supply and combustion gas pipe at the top of the gas boiler by turning counterclockwise.

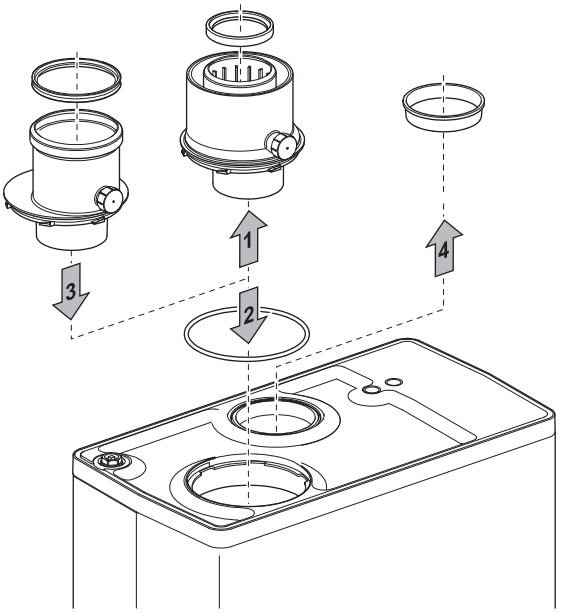
2 Remove the O-ring from the concentric pipe and fit it around the flange of the dual pipe adapter Ø80.

3 Place the combustion gas connection (Ø80) in the top of the appliance and turn it clockwise so that the measurement nipple points straight forward. The integral sealing ring ensures an airtight connection.

4 Remove the lid from the air supply connection. Make sure to properly connect the air intake. Room air dependent installation is NOT allowed.

5 Fit the pipes for the air supply and flue gas carefully in the air inlet opening and flue gas adapter of the unit. The built-in gaskets ensure there is an air tight seal. Make sure that the connections are not mixed.

6 Check the connection of the internal flue pipe and the condensate collector. Make sure it is properly connected.



INFORMATION

Carefully follow the instructions as described in the adapter set.

6.8.3 Calculate the total piping length

When the resistance of the flue pipe and air supply pipe increase, the appliance power will decrease. The maximum permitted reduction in power is 5%.

The resistance of the air supply pipe and combustion gas flue depends on:

- the length,
- the diameter,
- all components (bends, elbows,…).

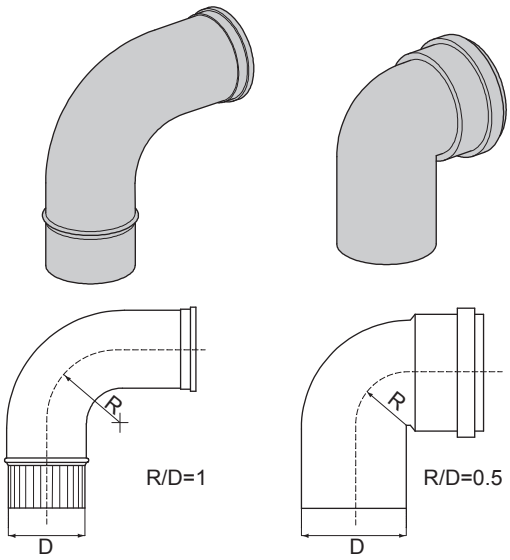
The total permitted pipe length of the air supply and the combustion gas flue is indicated for each appliance category.

Equivalent length for concentric installation (60/100)

	Length (m)
Bend 90°	1.5
Bend 45°	1

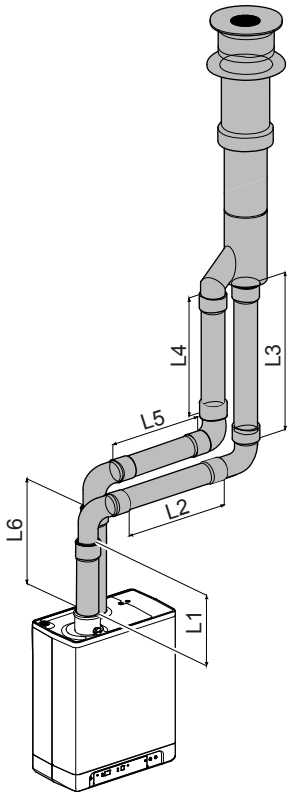
Equivalent length for dual pipe installation

		Length (m)
R/D=1	Bend 90°	2 m
	Bend 45°	1 m
R/D=0.5	Elbow 90°	4 m
	Elbow 45°	2 m



For a dual pipe connection, all defined lengths assume a diameter of 80 mm.

Sample calculation for dual pipe application



Pipe	Pipe length	Total pipe length
Flue pipe	L1+L2+L3+(2×2) m	13 m
Air supply	L4+L5+L6+(2×2) m	12 m

Total piping length = sum of the straight pipe lengths + sum of the equivalent pipe length of bends/elbows.

6.8.4 Appliance categories and pipe lengths

Following installation methods are supported by the manufacturer.

Single boiler installation

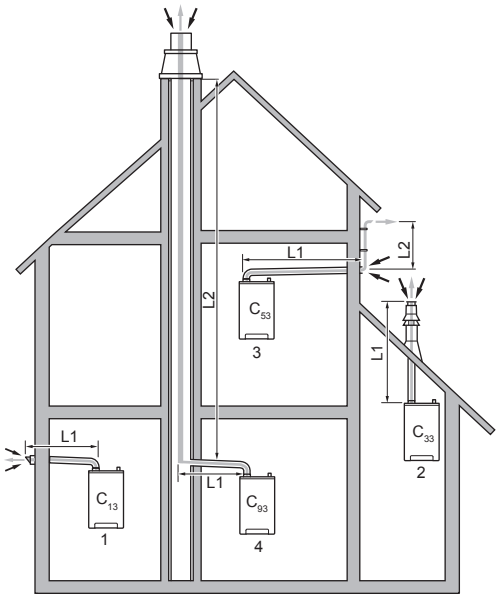
Please note that NOT all flue gas configurations as described below are allowed in all countries. Please follow the local and national regulations.

INFORMATION

All piping lengths in the tables below are maximum equivalent piping lengths.

INFORMATION

The above installation examples are just examples and can differ on some details.



Explanation of the flue systems		
Category in accordance with CE		
B_{23}	A flue that evacuates the products of combustion to the outside of the room containing the appliance. The combustion air is drawn directly from the room.	Make sure the air inlet is open and complies to the demands.
B_{33}	A flue system which is connected to a common duct system. This common duct system consists of a single natural draught flue. All pressurized parts of the appliance containing products of combustion are completely enclosed by parts of the appliance supplying combustion air. Combustion air is drawn into the appliance from the room by means of a concentric duct, which encloses the flue. The air enters through defined orifices situated in the surface of the duct.	Make sure the air inlet is open and complies to the demands.
C_{13}	Horizontal flue system. Discharge in the outside wall. Inlet opening for the air supply is in the same pressure zone as the discharge.	For example: a wall terminal through the façade.
C_{33}	Vertical flue system. Flue gas discharge via the roof. Inlet opening for the air supply is in the same pressure zone as the discharge.	For example: a vertical roof terminal.
C_{43}	Joint air supply and flue gas discharge duct (CLV system). Twin pipe or concentric.	—
C_{53}	Separate air supply and separate flue gas discharge duct. Discharge into different pressure zones.	—
C_{63}	Free in the market available flue material with CE approval.	Do NOT mix flue materials from different suppliers.
C_{83}	Joint air supply and flue gas discharge duct (CLV system). Discharging into different pressure zones.	Only as twin pipe system.
C_{93}	Air supply and flue gas discharge duct in shaft or ducted: concentric. Air supply from existing duct. Flue gas discharge via the roof. Air supply and flue gas discharge are in the same pressure zone.	Concentric flue system between the gas boiler and the duct.

Permitted pipe lengths B_{23} and B_{33} Ø80 mm:

	B_{23}	B_{33}
EHY2KOMB28AA	85 m	85 m
EHY2KOMB32AA	80 m	80 m

The horizontal flue MUST be installed under a 3° fall towards the boiler (50 mm per metre) and MUST be supported with a minimum of 1 bracket at each meter length. Best recommended position of the bracket is just before the joint.

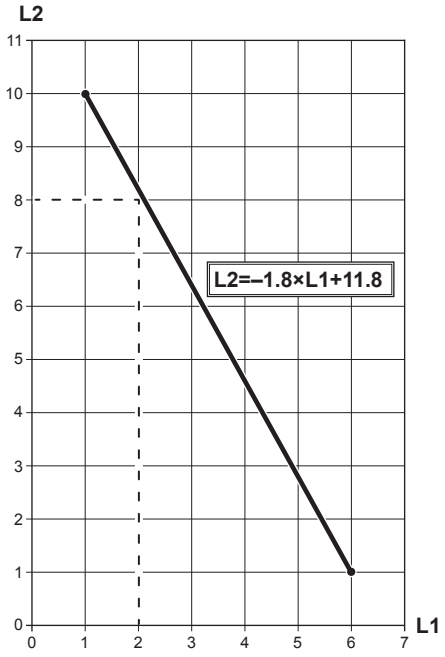
INFORMATION

Flexible flue gas lines may NOT be used in horizontal connection sections.

C_{13} (1)	C_{33} (2)	C_{13} (1)	C_{33} (2)
60/100	**60/100**	**Twin-80**	**Twin-80**
L1 (m)	**L1 (m)**	**L1 (m)**	**L1 (m)**
10	10	80	21

C_{13} (1)	C_{33} (2)	C_{93} (4)		C_{53} (3)	
80/125	80/125	80/125	80	60/100	60
L1 (m)	L1 (m)	L1 (m)	L2 (m)	L1 (m)	L2 (m)
29	29	10	25	6	1
				1	10

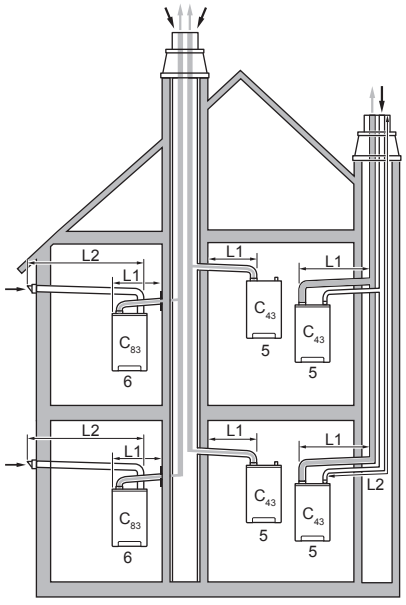
Special remark regarding C_{53}: The maximum lengths for L1 and L2 are related to each other. First determine the length of L1; then make use of the graph below to determine the maximum length of L2. For example: if the length of L1 is 2 m, L2 can maximally be 8 m long.



Multi-boiler installation

INFORMATION

All piping lengths in the tables below are maximum equivalent piping lengths.



The horizontal flue MUST be installed under a 3° fall towards the boiler (50 mm per metre) and MUST be supported with a minimum of 1 bracket at each meter length. Best recommended position of the bracket is just before the joint.

INFORMATION

Flexible flue gas lines may NOT be used in horizontal connection sections.

INFORMATION

The maximum lengths in the table below apply to each gas boiler separately.

C_{83} (6)	C_{43} (5)		
Twin-80	60/100	80/125	Twin-80
L1+L2 (m)	L1 (m)	L1 (m)	L1+L2 (m)
80	10	29	80

Special remark regarding C_{83}: Refer to the table below for the minimum diameters of the combined gas exhaust system.

Number of units	Minimum Ø
2	130
3	150
4	180
5	200
6	220
7	230
8	250
9	270
10	280
11	290
12	300

Special remark regarding C_{43}: Refer to the table below for the minimum diameters of the combined gas exhaust/air intake system.

For EHY2KOMB28AA:

Number of units	Concentric		Dual pipe	
	Gas exhaust	Air intake	Gas exhaust	Air intake
2	135	253	135	214
3	157	295	157	249
4	166	311	166	263
5	175	328	175	278
6	184	345	184	292
7	193	362	193	306
8	201	376	201	318
9	210	393	210	332
10	219	410	219	347
11	228	427	228	361
12	237	444	237	375
13	246	461	246	389
14	255	478	255	404
15	264	494	264	418
16	272	509	272	431
17	281	526	281	445
18	290	543	290	459
19	299	560	299	473
20	308	577	308	488

For EHY2KOMB32AA:

Number of units	Concentric		Dual pipe	
	Gas exhaust	Air intake	Gas exhaust	Air intake
2	155	291	155	246

Number of units	Concentric		Dual pipe	
	Gas exhaust	Air intake	Gas exhaust	Air intake
3	166	311	166	263
4	176	330	176	279
5	186	349	186	295
6	196	367	196	311
7	206	386	206	326
8	216	404	216	342
9	226	423	226	358
10	236	442	236	374
11	247	463	247	391
12	257	482	257	407
13	267	500	267	423
14	277	519	277	439
15	287	538	287	454
16	297	556	297	470
17	307	575	307	486
18	317	594	317	502
19	328	614	328	519
20	338	633	338	535

Special remark regarding C_{93}: The minimum inner dimensions of the chimney have to be 200×200 mm.

6.8.5 Applicable materials

Materials for the installation of the gas exhaust and/or air intake MUST be bought according to the table below.

	D	BG	BA	IT	HR	HU	SK	CZ	SI	ES	PT	PL	GR	CY	IE	TR	CH	AT	MT	LT	LV	UK	FR	B
C_{13}	Daikin																							
C_{33}	Daikin																							
C_{43}	Daikin																							
C_{53}	Daikin																							
C_{63}	(a)											(b)	(a)	(b)								(a)		(b)
C_{83}	Daikin																							
C_{93}	Daikin																							

(a) Gas exhaust/air intake parts can be bought from the 3rd party. All parts purchased from an external supplier MUST comply with EN14471.
(b) NOT allowed.

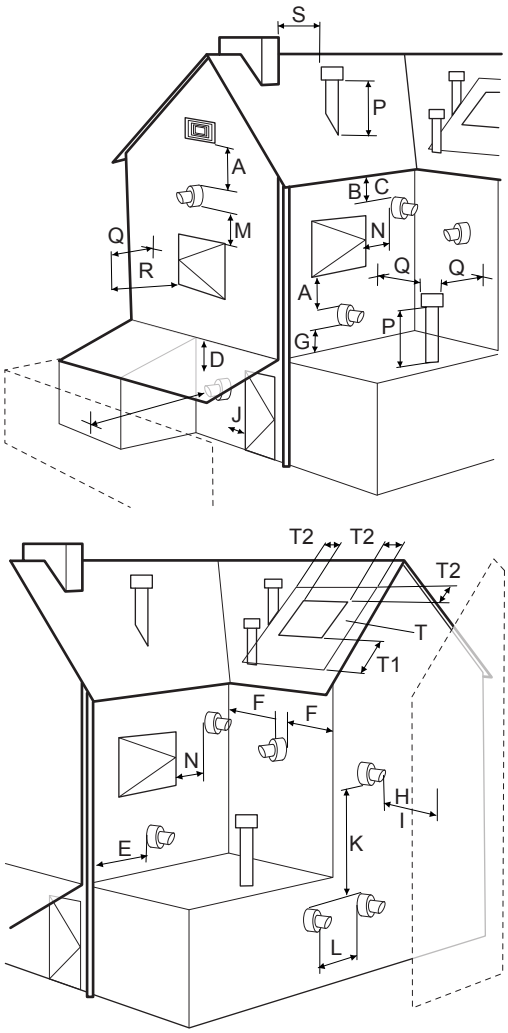
6.8.6 Flue pipe position

See the local and national regulations.

Especially for UK:

Only use flue products approved by the boiler manufacturer, which can be bought from the supplier of your boiler.

Refer to the field supplied accessories for all available accessories.



	Terminal position	Minimum distance (mm)
A	Directly below an open able window or other opening (e.g. air brick)	300
B	Below gutters, soil pipes or drain pipes	75
C	Below eaves	200
D	Below balconies or car front roofs	
E	From vertical drain pipes and soil pipe	150
F	From internal or external corners	300
G	Above ground, roof or balcony level	
H	From a surface facing a terminal	600
I	From a terminal discharging towards another terminal	1200
J	From an opening in a car port (e.g. door, window) into a dwelling	
K	Vertically from a terminal on the same wall	1500
L	Horizontally from a terminal on the same wall	300
M	Above an opening, air brick, opening windows, etc.	
N	Horizontally to an opening, air brick, opening windows, etc.	
P	Above roof level (to base terminal)	
Q	From an adjacent wall to flue	
R	From an adjacent opening window	1000

	Terminal position	Minimum distance (mm)
S	From another roof terminal	600
-	From an external boundary. Note: If the terminal is facing a boundary, it is recommended that an anti-plume kit be fitted.	
T T1 T2	Terminals adjacent to windows or openings on pitched and flat roofs: The flue should NOT penetrate this area.	 2000 600

NOTICE

The boiler manufacturer cannot be held responsible for atmospheric conditions when siting flue terminals.

CAUTION

Once the flue system has been installed and the appliance commissioned, the installer should observe the plume direction. Particular attention should be drawn to plume vapour reentering the gas boiler via the air intake. If this occurs, it is highly possible the flue is fitted with a negative pressure area and therefore a plume management kit MUST be fitted.

6.8.7 Insulation of the gas exhaust and air intake

Condensation may occur on the outside of the pipe material when the material temperature is low and the environment temperature is high with a high humidity. Use 10 mm damp-proof insulation material when there is a risk of condensation.

6.8.8 Fitting a horizontal flue system

The 60/100 mm horizontal flue system may be extended up to a maximum length as specified in the table indicating the maximum pipe lengths. Calculate the equivalent length according to the specifications in this manual.

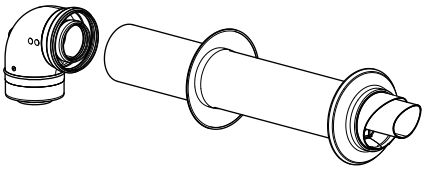
CAUTION

Read the installation manuals of the field supplied parts.

The horizontal flue MUST be installed under a 3° fall towards the boiler (50 mm per metre) and MUST be supported with a minimum of 1 bracket at each meter length. Best recommended position of the bracket is just before the joint.

INFORMATION

Flexible flue gas lines may NOT be used in horizontal connection sections.

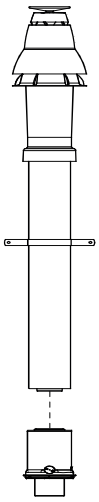


6.8.9 Fitting a vertical flue system

A vertical 60/100 mm flue kit is also available. By using additional components available from your boiler supplier, the kit can be extended up to a maximum length as specified in the table indicating the maximum pipe lengths (excluding the initial boiler connection).

CAUTION

Read the installation manuals of the field supplied parts.



6.8.10 Plume management kit

See the local and national regulations.

Especially for UK:

The plume management kit comprises of a 710 mm horizontal section elbow to connect the 500 mm vertical condensing tube, which has a horizontal or vertical terminal dependant on your requirements. The maximum length of the horizontal flue including the terminal but excluding the initial elbow from the boiler and 500 mm vertical condensing tube is 7 m.

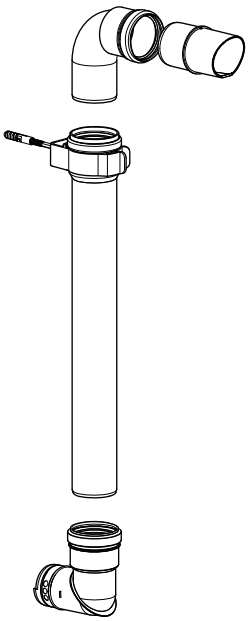
NOTICE

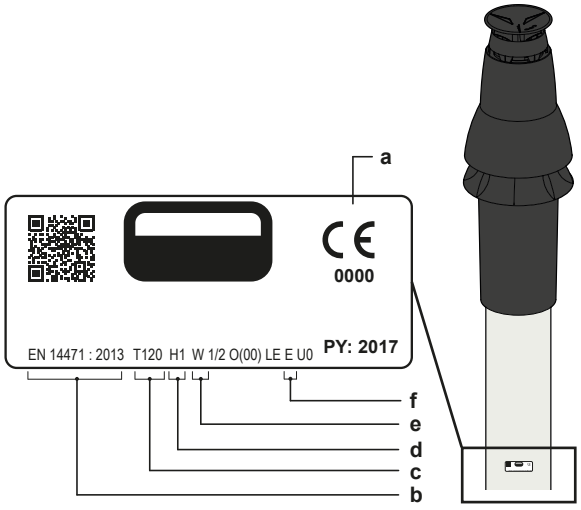
For each additional 90° elbow used the maximum flue length MUST be reduced by 1.5 m whilst the use of 2× 45° bends warrants a reduction of 2 m.

The horizontal part of the flue MUST be installed under a 3° fall towards the boiler (5 mm per m) and MUST be supported with a minimum of 1 bracket at each 1 m length. Best recommended position of the bracket is just before the joint.

CAUTION

- Sealing rings should ONLY be moisturized with water before use. Do NOT use soap or other detergents.
- When installing flues in voids, make sure that they are connected and fixed correctly. If in an existing situation a visual inspection is NOT possible, the boiler must NOT be commissioned and remain disconnected from the gas supply until suitable access has been realised.
- Make sure to follow the manufacturer's instructions regarding maximum length of the flue system, the appropriate flue material, correct jointing methods and the maximum distance between flue support.
- Make sure that all joints and seams are gastight and watertight.
- Make sure that the flue system has a uniform gradient back to the boiler.





a CE marking
b In case of metal, the standard must comply to EN 1856-2.
In case of plastic, the standard must comply to EN 14471

The identification string needs to contain the following information:

c Temperature class: T120
d Pressure class: Pressure (P) or high pressure (Hi)
e Resistance class: Wet (W)
f Resistance class in case of fire: E

6.8.11 Flues in voids

Especially for UK:

The flue system must be connected in accordance with the manufacturers instructions before firing the boiler.

The term void includes ceiling voids, floor voids, purpose built enclosures, service risers, roof spaces or any other enclosure that will restrict access to inspect the flue.

To allow visual inspection, without reliance on devices such as endoscopes, cameras and mirrors, inspection hatches must be provided along the entire length of the flue.

Hatches must be a minimum of 300 mm×300 mm and positioned with the edge of the inspection hatch to 1.5 m of any joint and at changes of direction. Bends should be viewable from both directions where the inspection hatch cannot be positioned at the bend.

Where suitable access is not provided the appliance must NOT be commissioned and must be disconnected from the gas supply.

Additionally the entire flue and all flue seals must be installed in accordance with the requirements of BS5440:

- Check if the condensate trap is filled with water and correctly connected to the boiler.
- All flue joints are correctly made, unstressed and adequately supported.
- All parts of the flue can be visually inspected. Ensure suitable access where flue is positioned within voids.

6.8.12 Flue gas materials (C63) available on the market

The properties of the combustion determine the choices for the flue material. The standards EN 1443 and EN 1856-1 provide the necessary information for choosing the flow material by means of a sticker including an identification string. The identification string contains the following information:

Dimensions C63 of the flue system (external dimensions in mm)

Parallel	Concentric 80/125		Concentric 60/100	
	Flue pipe	Air inlet	Flue pipe	Air inlet
Ø80 (+0.3 / –0.7)	Ø80 (+0.3 / –0.7)	Ø125 (+2 / –0)	Ø60 (+0.3 / –0.7)	Ø100 (+2 / –0)

WARNING

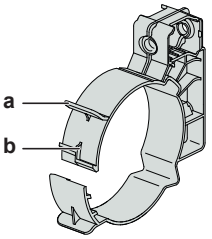
Flue materials of different markings must NOT be combined.

6.8.13 About securing the flue system

CAUTION

- These regulations are typical for both concentric and parallel flue systems.
- The flue system MUST be secured to a solid structure.
- The flue system should have a continuous fall back to the boiler (1.5°~3°). Wall terminals MUST be installed levelled.
- Only use accompanying brackets.
- Every elbow MUST be secured by using the bracket. Exception at connecting on boiler: if the length of the pipes before and after the first elbow are ≤250 mm, the second element after the first elbow has to contain a bracket. The bracket MUST be positioned on the elbow.
- Every extension MUST be secured per meter with a bracket. This bracket MUST not be clamped around the pipe ensuring free movement of the pipe.
- Make sure that the bracket is locked into the correct position depending on the position of the bracket on the pipe or elbow.
- Do NOT mix flue parts or clamps of different suppliers.

Which fixation position to use



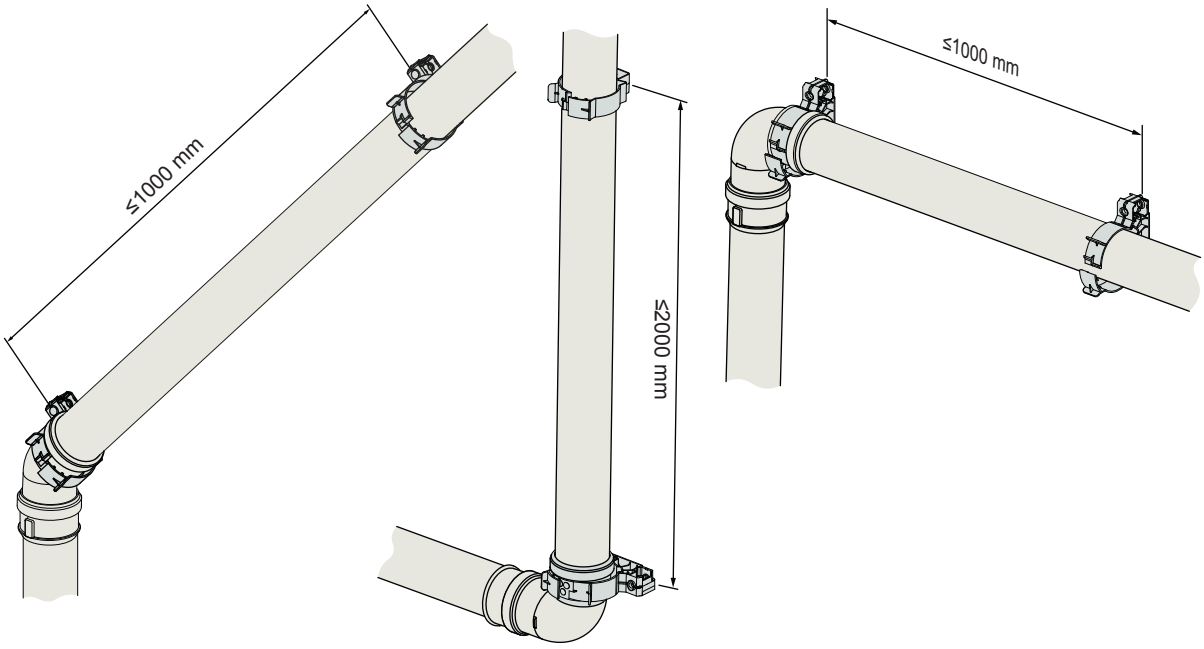
a In case to fix on the pipe

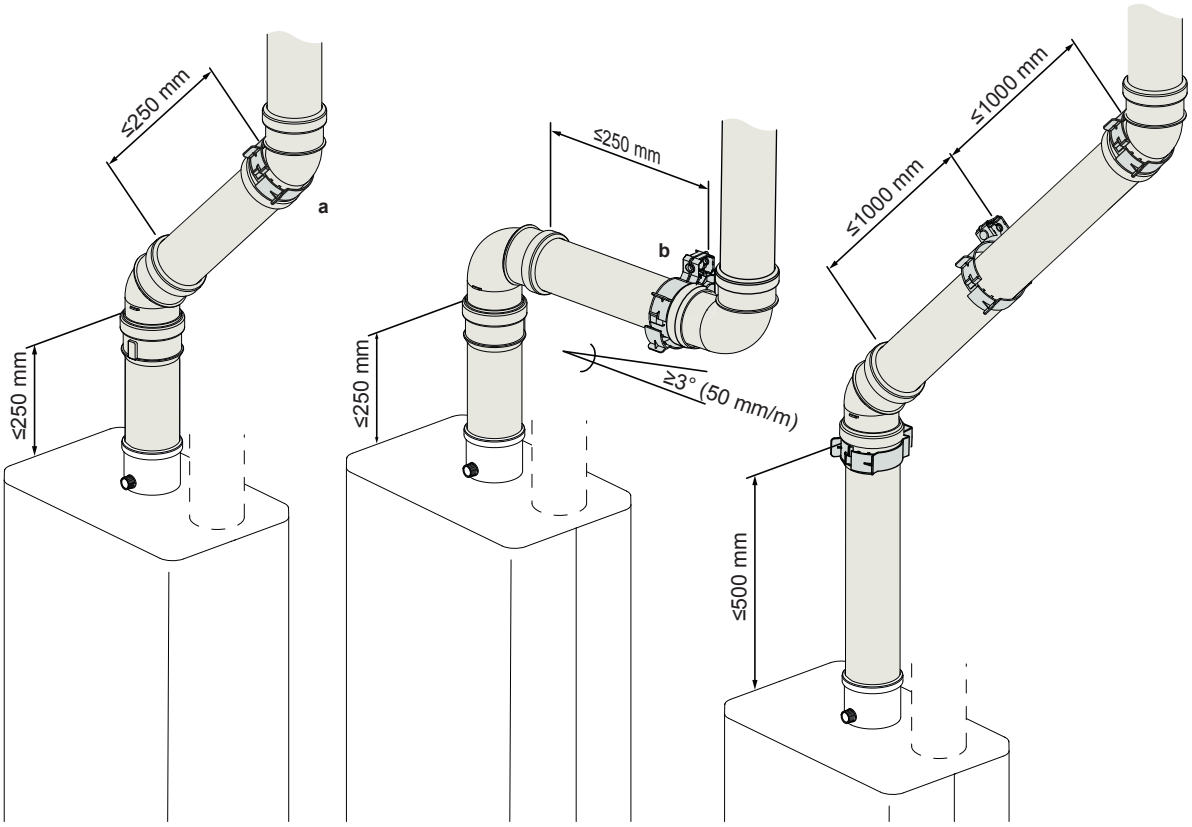
b In case to fix on the sleeve

Maximum distance between clamps

Vertical position of pipe	Other position of pipe
2000 mm	1000 mm

- Divide the length between the brackets evenly.
- Every system MUST contain at least 1 bracket.
- Position the first clamp at a maximum of 500 mm from the gasboiler.



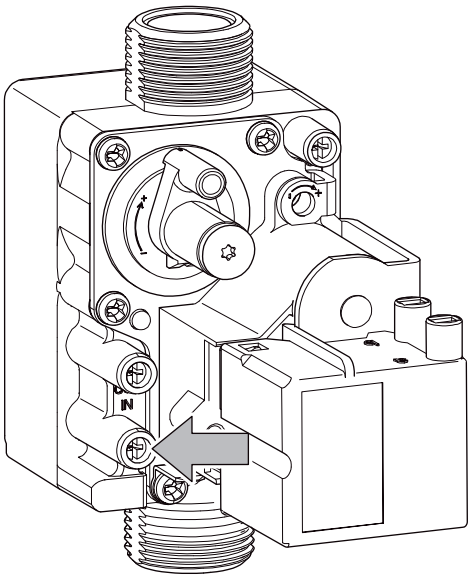


A Second clamp after the second elbow
B First clamp after the second elbow

6.9 Finishing the gas boiler installation

6.9.1 To perform an air purge on the gas supply

1 Turn once the screw counterclockwise.



Result: Gas supply will purge air.

2 Check all connections for leakage.

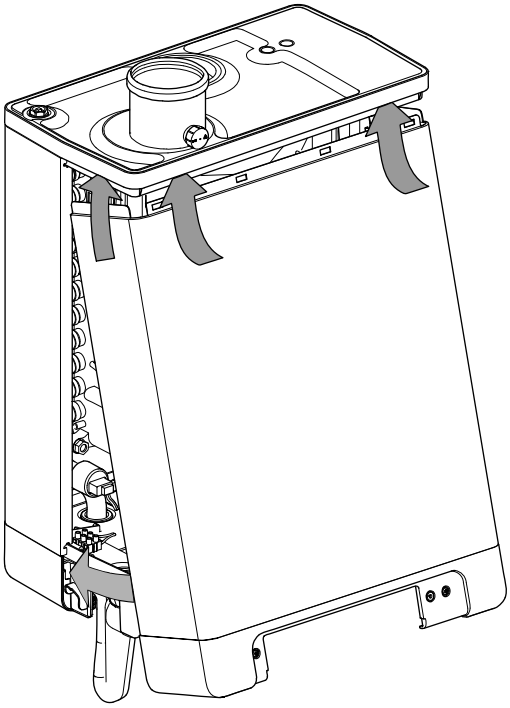
3 Check the gas supply pressure.

INFORMATION

Make sure the working inlet pressure does NOT interfere with other gas appliances installed.

6.9.2 To close the gas boiler

1 Hook the top of the front panel into the top of the gas boiler.

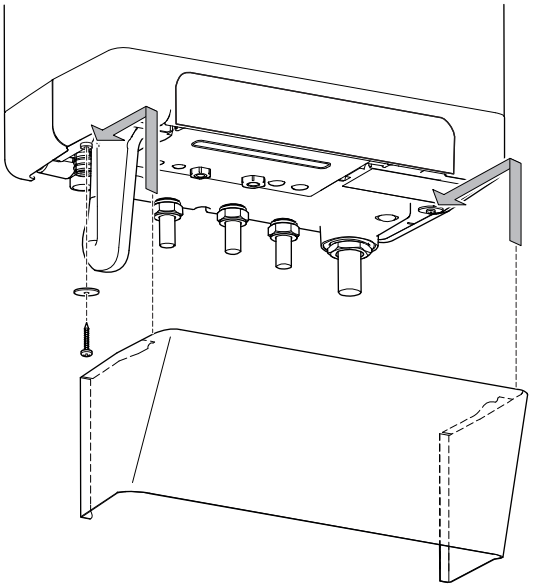


2 Tilt the bottom side of the front panel towards the gas boiler.

3 Screw both screws of the cover.

4 Close the display cover.

6.9.3 To install the cover plate

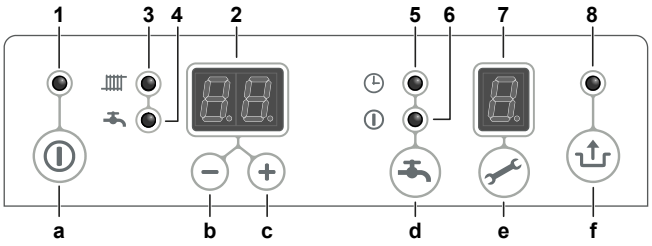


The boiler cover plate is an optional product.

7 Configuration

7.1 Gas boiler

7.1.1 Overview: Configuration



Read out

1 On/off
2 Main display
3 Space heating operation
4 Domestic hot water operation
5 Domestic hot water comfort function eco
6 Domestic hot water comfort function on (continuous)
7 Service display
8 Flashes to indicate a fault

Operation

a On/off button
b – button
c + button
d Domestic hot water function off/eco/on
e Service button
f Reset button

7.1.2 Basic configuration

To turn on/off the gas boiler

1 Push the ⏻ button.

Result: The green LED above the ⏻ button will light up when the boiler is ON.

When the gas boiler is OFF, - is displayed on the service display to indicate that the power is ON. In this mode, the pressure in the space heating installation will also be displayed on the main display (bar).

Domestic hot water comfort function

Not applicable for Switzerland

This function can be operated with the domestic hot water comfort key (). The following functions are available:

- On: The LED lights up. The domestic hot water comfort function is switched on. The heat exchanger will be kept on temperature to assure instant delivery of hot water.
- Eco: The LED lights up. The domestic hot water comfort function is self-learning. The appliance will learn to adapt to the pattern of use of hot tap water. For example: the temperature of the heat exchanger will NOT be maintained during the night or in case of long absence.
- Off: Both LED's are OFF. The temperature of the heat exchanger is NOT maintained. For example: It will take a while to deliver hot water to the hot water taps. If there is no need for immediate hot water delivery, the domestic hot water comfort function can be turned off.

To reset the gas boiler

INFORMATION

Resetting is only possible when an error occurs.

Prerequisite: Flashing LED above the button and an error code on the main display.

Prerequisite: Check the meaning of the error code (see "Error codes of the gas boiler" on page 35) and resolve the cause.

1 Press to restart the gas boiler.

Maximum space heating supply temperature

See the user reference guide for more details.

Domestic hot water temperature

See the user reference guide for more details.

Keep hot function

The reversible heat pump features a keep hot function that keeps the heat exchanger hot continuously to prevent sweat from occurring in the gas boiler switch box.

In case of heating only models, this function can be deactivated through the parameter settings of the gas boiler.

INFORMATION

Do NOT deactivate the keep hot function if the gas boiler is connected to a reversible indoor unit. It is recommended to always deactivate the keep hot function if the gas boiler is connected to a heating only indoor unit.

It is recommended to always deactivate the keep hot function.

Frost protection function

The boiler is equipped with an internal frost protection function that automatically operates when necessary, even if the boiler is turned off. If the heat exchanger temperature drops too low, the burner will switch on until the temperature is sufficiently high again. When frost protection is active, is displayed on the service display.

To set the parameters via the service code

The gas boiler is factory set in accordance with the default settings. Take into account the remarks in the table below when changing the parameters.

1 Press simultaneously on and until appears on the main and the service display.

2 Use the + and − buttons to set (service code) on the main display.

3 Press the button to set the parameter on the service display.

4 Use the + and − buttons to set the parameter to the desired value on the service display.

5 When all settings are done, press until appears on the service display.

Result: The gas boiler has now been reprogrammed.

INFORMATION

- Press the button to exit the menu without storing the parameter changes.
- Press the button to load the default settings of the gas boiler.

Parameters on the gas boiler

Parameter	Setting	Range	Default settings	Description
0	Service code	—	—	To access the installer settings, enter the service code (=15)
1	Installation type	0~3	0	▪ 0=Combi ▪ 1=Heating only + external domestic hot water tank ▪ 2=Domestic hot water only (no heating system required) ▪ 3=Heating only It is recommended not to modify this setting.
2	Space heating pump continuous	0~3	0	▪ 0=Post purge period only ▪ 1=Pump continuously active ▪ 2=Pump continuously active with MIT switch ▪ 3=Pump on with external switch This setting has no effect.

Parameter	Setting	Range	Default settings	Description
3	Maximum space heating power set	c~85%	60%	Maximum power in heating. This is a percentage of the maximum set in parameter h. We strongly recommend not modifying this setting.
3.	Maximum capacity space heating pump	—	80	The setting is controlled by the heat pump.
4	Maximum domestic hot water power set (not applicable for Switzerland)	d~100%	100%	Maximum power in instant domestic hot water. This is a percentage of the maximum set in parameter h. Because of the 2-digit display, the highest displayable value is 99. It is however possible to set this parameter to 100% (default setting). We strongly recommend not modifying this setting.
5	Minimum supply temperature of the heat curve	10°C~25°C	25°C	Do NOT modify this setting on the boiler. Use the user interface instead.
5.	Maximum supply temperature of the heat curve	30°C~90°C	90°C	Do NOT modify this setting on the boiler. Use the user interface instead.
6	Minimum outside temperature of the heat curve	–30°C~10°C	–7°C	Do NOT modify this setting on the boiler. Use the user interface instead.
7	Maximum outside temperature of the heat curve	15°C~30°C	25°C	Do NOT modify this setting on the boiler. Use the user interface instead.
8	Space heating pump post purge period	0~15 min	0 min	Changing this setting has no effect on the operation of the unit.
9	Space heating pump post purge period after domestic hot water operation	0~15 min	0 min	Changing this setting has no effect on the operation of the unit.
A	Position 3-way valve or electric valve	0~3	0	▪ 0=Not inverted ▪ 1=Inverted ▪ 2 and higher=Not applicable
b	Booster	0~1	0	Changing this setting has no effect on the operation of the unit.
C	Step modulation	0~1	1	▪ 0=OFF during space heating operation ▪ 1=ON during space heating operation It is recommended not to modify this setting.
c	Minimal space heating rpm	23%~50%	30%	Adjustment range 23~50%. It is recommended not to modify this setting in case of natural gas.
c.	Minimum capacity space heating pump	—	40	There is no space heating pump in the gas boiler. Changing this setting has no effect.
d	Minimal domestic hot water rpm (not applicable for Switzerland)	23%~50%	25%	Adjustment range 23~50% (40=propane). It is recommended not to modify this setting in case of natural gas.
E.	Reversible setting	0~1	0	This setting activates the keep hot function of the gas boiler. It is only used with reversible heat pump models and should NEVER be deactivated. It MUST be deactivated for heating only models (set to 0). ▪ 0=disabled ▪ 1=enabled
F	Start rpm space heating	50%~99%	50%	This is the fan rpm before heating ignition. It is recommended not to modify this setting.
F.	Start rpm domestic hot water (not applicable for Switzerland)	50%~99%	50%	Do not modify this setting.

Parameter	Setting	Range	Default settings	Description
h	Maximum fan rpm	45~50	EHY2KOMB28AA: 48 EHY2KOMB32AA: 50	Use this parameter to set the maximum fan rpm. It is recommended not to modify this setting.
L	Legionella protection (only when external hot water tank is connected)	0~2	0	▪ 0=Not active ▪ 1=Active 1 time per week ▪ 2=Active 1 time per day
n	Set point space heating (flow temperature) during heating external domestic hot water tank	60°C~90°C	85°C	Do NOT modify this setting on the boiler. Use the user interface instead.
n.	Comfort temperature	0°C / 40°C~65°C	0°C	Temperature used for eco/comfort function. When the value is 0°C, the eco/comfort temperature is the same as the domestic hot water setpoint. Otherwise, the eco/comfort temperature is between 40°C and 65°C.
o.	Waiting time after a space heating demand from a thermostat.	0 min~15 min	0 min	Changing this setting has no effect on the operation of the unit.
o	Waiting time after a domestic hot water demand before a space heating demand is answered.	0 min~15 min	0 min	Amount of time the boiler waits before answering a space heating demand after a domestic hot water demand.
o.	Number of eco days.	1~10	3	Number of eco days.
P	Anti-cycling period during space heating operation	0 min~15 min	5 min	Minimal switch-off time in space heating operation. It is recommended not to modify this setting.
P.	Reference value for domestic hot water	24-30-36	36	▪ 24: Not applicable. ▪ 30: Only for EHY2KOMB28AA ▪ 36: Only for EHY2KOMB32AA
q	Summer mode	1~3	0	▪ 0=Summer mode deactivated ▪ 1=Summer mode to be activated with ⓘ button (code on display=Su) ▪ 2=Summer mode to be activated with ⓘ button (code on display=So) ▪ 3=Summer mode to be activated with ⓘ button (code on display=Et)
r	Heating curve coefficient	0	0	Not applicable

Maximum space heating power setting

The maximum space heating power setting (3) is factory set to 70%. If more or less power is required, you can change the fan rpm. The table below shows the relationship between the fan rpm and the appliance power. It is strongly recommended NOT to modify this setting.

Desired power (kW)		Setting on service display (% of max. rpm)
EHY2KOMB28AA	EHY2KOMB32AA	
23.1	26.6	85
20.1	22.4	70
17.4	19.2	60
14.6	16.0	50
11.8	12.8	40
7.7	8.0	25

A minimum flow rate must be guaranteed so that the boiler does not go in high temperature error. This can be maintained by opening the radiator valves if there are any closed, or adding an appropriate by-pass way in between space heating outlet and space heating inlet of the boiler if thermostatic valves are fitted to all radiators.

Minimum required flow rate values for corresponding set powers are given in the table below.

Minimum flow rate (l/min)	Set power (kW)
2.6	5.4 kW
4.0	8.5 kW
8.5	17.8 kW
12.5	26.2 kW

Note that for the gas boiler the power during burning is increased slowly and is reduced as soon as the supply temperature is reached.

Frost protection function

The boiler is equipped with an internal frost protection function that automatically operates when necessary, even if the boiler is turned off. If the heat exchanger temperature drops too low, the burner will switch on until the temperature is sufficiently high again. When frost protection is active, 7 is displayed on the service display.

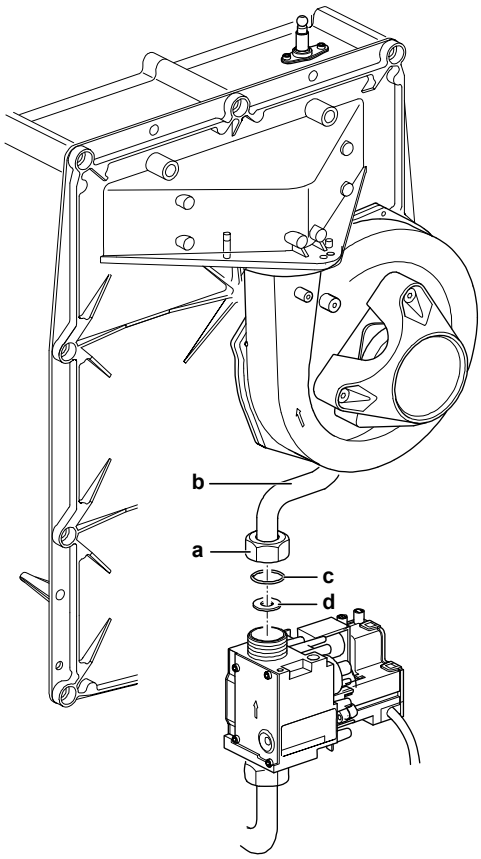
To change to a different type of gas

CAUTION

Work on gas carrying parts may ONLY be carried out by a qualified competent person. ALWAYS comply with local and national regulations. The gas valve is sealed. In Belgium, any modifications to the gas valve MUST be performed by a certified representative of the manufacturer. For more information, contact your dealer.

If a different type of gas is connected to the appliance than that for which the appliance has been set by the manufacturer, the gas metering MUST be replaced. Conversion sets for other types of gas are available to order. See "5.2.1 Possible options for the gas boiler" on page 8.

1 Switch the boiler off and isolate the boiler from the mains power.
2 Close the gas tap.
3 Remove the front panel from the appliance.
4 Unscrew the coupling (a) above the gas valve and twist the gas mixing tube towards the rear (b).
5 Replace the O-ring (c) and the gas restriction (d) with the rings from the conversion set.
6 Reassemble in reverse sequence.
7 Open the gas tap.
8 Check the gas connections before the gas valve for gastightness.
9 Switch on the mains power.
10 Check the gas connections after the gas valve for gastightness (during operation).
11 Now check the setting of the CO_2 percentage at high setting (H in display) and low setting (L in display).
12 Put a sticker indicating the new gas type on the bottom of the gas boiler, next to the nameplate.
13 Put a sticker indicating the new gas type next to the gas valve, over the existing one.
14 Put the front panel back in its place.



a Coupling
b Gas mixing tube
c O-ring
d Gas metering ring

INFORMATION

The gas boiler is configured for operation with gas type G20 (20 mbar). However, if the gas type present is G25 (25 mbar), the gas boiler can still be operated without modification.

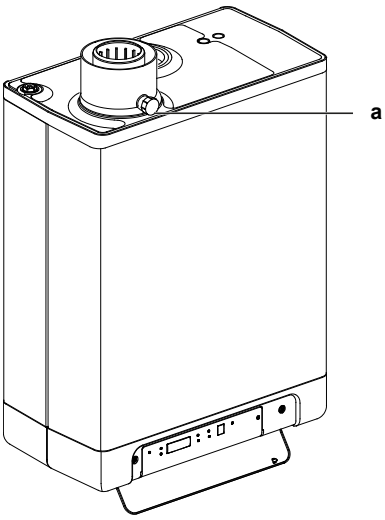
About the carbon dioxide setting

The CO_2 setting has been set in the factory and in principle requires no adjustments. The setting can be checked by measuring the CO_2 percentage in the combustion gases. In case of possible disturbance of the adjustment, replacement of the gas valve or conversion to another gas type the adjustment must be checked and if necessary set according to the instructions below.

Always check the CO_2 percentage when the cover is open.

To check the carbon dioxide setting

1 Switch off the heat pump module with the user interface.
2 Switch off the gas boiler with the ⏻ button. - appears on the service display.
3 Remove the front panel from the gas boiler.
4 Remove the sampling point (a) and insert a suitable flue gas analyser probe.



INFORMATION

Make sure the start-up procedure of the analyser is completed before inserting the probe into the sampling point.

INFORMATION

Allow the gas boiler to operate steadily. Connecting the measuring probe before stable operation can give incorrect readings. It is recommended to wait at least 30 minutes.

5 Switch on the gas boiler with the ⏻ button and create a space heating demand.

6 Select High setting by simultaneously pressing 🔧 and + twice. Capital H will appear on the service display. The user interface will display Busy. Do NOT test when lowercase h is displayed. If this is the case, press 🔧 and + again.

7 Allow readings to stabilise. Wait for at least 3 minutes and compare the CO_2 percentage with the values in the table below.

CO_2 value at maximum power	Natural gas G20	Natural gas G25 (in Belgium)	Propane P G31 (30/50 mbar)	Propane P G31 (37 mbar)
Maximum value	9.6	8.3	10.8	
Minimum value	8.6	7.3	9.8	

8 Note down the CO_2 percentage at maximum power. This is important with regard to the next steps.

CAUTION

It is NOT possible to adjust the CO_2 percentage when test program H is running. When the CO_2 percentage deviates from the values in the table above, please contact your local service department.

9 Select Low setting by simultaneously pressing 🔧 and − buttons once. L will appear on the service display. The user interface will display Busy.

10 Allow readings to stabilise. Wait for at least 3 minutes and compare the CO_2 percentage with the values in the table below.

CO_2 value at minimum power	Natural gas G20	Natural gas G25 (in Belgium)	Propane P G31 (30/50 mbar)	Propane P G31 (37 mbar)
Maximum value	(a)			
Minimum value	8.4	7.4	9.4	9.4

(a) CO_2 value at maximum power recorded at High setting.

11 If the CO_2 percentage at maximum and minimum power is within the range expressed in the tables above, the CO_2 setting of the boiler is correct. If NOT, adjust the CO_2 setting according to the instructions in the chapter below.

12 Switch off the appliance by pressing the ⏻ button and put the sampling point back in its place. Make sure it is gastight.

13 Put the front panel back in its place.

CAUTION

Work on gas carrying parts may only be carried out by a qualified competent person.

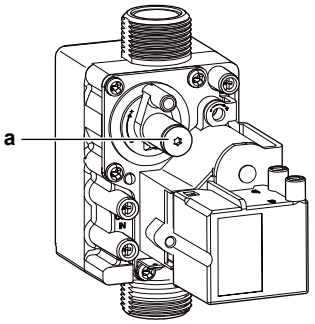
To adjust the carbon dioxide setting

INFORMATION

Only adjust the CO_2 setting when you have checked it first and are sure adjustment is necessary. In Belgium, any modifications to the gas valve MUST be performed by a certified representative of the manufacturer. For more information, contact your dealer.

1 Remove the cap that covers the adjustment screw. In the illustration, the cover cap is already removed.

2 Turn the screw (a) to increase (clockwise) or decrease (counterclockwise) the CO_2 percentage. See the table below for the desired value.



a Adjusting screw with cover

Measured value at maximum power	Adjustment values CO_2 (%) at minimum power (front cover opened)	
	Natural gas 2H (G20, 20 mbar)	Propane 3P (G31, 30/50/37 mbar)
10.8	—	10.5±0.1
10.6		10.3±0.1
10.4		10.1±0.1
10.2		9.9±0.1
10.0		9.8±0.1
9.8		9.6±0.1
9.6	9.0±0.1	—
9.4	8.9±0.1	
9.2	8.8±0.1	
9.0	8.7±0.1	
8.8	8.6±0.1	
8.6	8.5±0.1	

3 After measuring the CO_2 percentage and adjusting the setting, put the cover cap and the sampling point back in their place. Make sure they are gastight.

4 Select High setting by simultaneously pressing 🔧 and + twice. Capital H will appear on the service display.

5 Measure the CO_2 percentage. If the CO_2 percentage still deviates from the values in the table indicating the CO_2 percentage at maximum power, contact your local dealer.

6 Press + and − simultaneously to exit the test program.

7 Put the front panel back in its place.

8 Operation

8.1 Overview: Operation

The gas boiler is a modulating, high-efficiency boiler. This means that the power is adjusted in line with the desired heat requirement. The aluminium heat exchanger has 2 separate copper circuits. As a result of the separately constructed circuits for space heating and domestic hot water, the heating and the hot water supply can operate independently, but not simultaneously.

The gas boiler has an electronic boiler controller which does the following when heating or hot water supply is required:

- starting the fan,
- opening the gas valve,
- igniting the burner,
- constantly monitoring and controlling the flame.

It is possible to use the domestic hot water circuit of the gas boiler without connecting and filling the space heating system.

8.2 Heating

Heating is controlled by the outdoor unit. The boiler will start-up the heating process when there is a request from the outdoor unit.

8.3 Domestic hot water

Not applicable for Switzerland

Instant domestic hot water is supplied by the boiler. When a simultaneous demand of space heating and domestic hot water occurs, domestic hot water has priority over space heating.

This manual only explains the domestic hot water making without having a domestic hot water tank combined with the system. For the operation and needed settings of domestic hot water in combination with a domestic hot water tank needed for Switzerland, please refer to the manual of the heat pump module.

8.4 Operation modes

The following codes on the service display indicate the following operating modes.

- Off

The gas boiler is out of operation but is supplied with electric power. There will be no response on space heating and/or domestic hot water demands. Frost protection is active. This means that the exchanger is heated up if the water temperature in the gas boiler is too low. If applicable, the keep hot function will also be active.

If frost protection or keep hot function is activated, H will be displayed (heating the exchanger). In this mode, the pressure (bar) in the space heating installation can be read on the main display.

Waiting mode (blank service display)

The LED at the ⏻ button is lit and possibly also one of the LEDs for the domestic hot water comfort function. The gas boiler is waiting for a space heating and/or domestic hot water demand.

0 Pump overrun of space heating

After each space heating operation, the pump continues to run. This function is controlled by the outdoor unit.

1 Boiler shutdown when the required temperature is reached

The boiler controller can temporarily stop the requested space heating demand. The burner will stop. The shutdown occurs because the requested temperature is reached. When the temperature drops too fast and the anti-cycle time has passed, the shutdown will be cancelled.

2 Self-test

The sensors check the boiler controller. During the check-up, the boiler controller does NOT perform any other tasks.

3 Ventilation

When the appliance is started, the fan goes to starting speed. When the starting speed is reached, the burner is lit. The code will also be visible when post-ventilation is taking place after the burner has stopped.

4 Ignition

When the fan has reached its starting speed, the burner is ignited by means of electric sparks. During ignition the code will be visible on the service display. If the burner does NOT ignite, a new ignition attempt occurs after 15 seconds. If after 4 ignition attempts the burner is NOT yet burning, the boiler will go into fault mode.

6 Domestic hot water operation

Not applicable for Switzerland

The domestic hot water supply has priority over space heating performed by the gas boiler. If the flow sensor detects a domestic hot water demand of more than 2 l/min, space heating by the gas boiler will be interrupted. After the fan has reached speed code and ignition is done, the boiler controller goes into domestic hot water mode.

During the domestic hot water operation, the fan speed and hence the appliance power are controlled by the gas boiler controller so that the domestic hot water temperature reaches the domestic hot water temperature setting.

The domestic hot water supply temperature must be set on the user interface of the hybrid module. See the user reference guide for more details.

H Domestic hot water comfort function/Frost protection/Keep hot function

Not applicable for Switzerland

H appears on the display when either the domestic hot water comfort function, the frost protection function or the keep hot function is active.

9 space heating operation

When a space heating request is received from the outdoor unit, the fan is started, followed by the ignition, and the space heating operation mode. During the space heating operation, the fan speed and hence the appliance power are controlled by the gas boiler controller so that the space heating water temperature reaches the desired space heating supply temperature. During the space heating operation, the requested space heating supply temperature is indicated on the operating panel.

The space heating supply temperature must be set on the user interface of the hybrid module. See the user reference guide for more details.

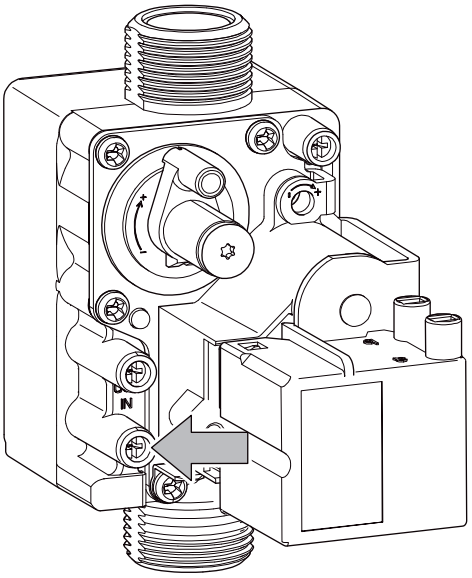
9 Commissioning

Especially for UK:

At the time of commissioning, complete all relevant sections of the Benchmark Checklist on the backpages of this document.

9.1 To perform a gas pressure test

1 Connect a suitable gauge on the gas valve. Static pressure MUST be 20 mbar.



2 Select test program "H". See "9.2 To perform a test run on the gas boiler" on page 31. Static pressure MUST be 20 mbar (+ or – 1 mbar). If the working pressure is <19 mbar, the gas boiler output will be reduced and the correct combustion reading may NOT be obtained. Do NOT adjust the air and/or gas ratio. To obtain sufficient working pressure, gas supply MUST be correct.

INFORMATION

Make sure the working inlet pressure does NOT interfere with other gas appliances installed.

9.2 To perform a test run on the gas boiler

The gas boiler has a test run function. Activating this function results in the activation of the gas boiler (pump starts and fan starts with a fixed speed), without the control functions being actuated. The safety functions remain active. The test run can be stopped by pressing + and – simultaneously or will end automatically after 10 minutes. To perform a test run, switch off the system with the user interface.

Make sure that the leaving water temperature home page, room temperature home page, and domestic hot water home page are turned OFF.

There may be no error on the gas boiler or the heat pump module. During a gas boiler test run, "busy" will be displayed on the user interface.

Program	Button combination	Display
Burner ON at minimum power	and –	L
Burner ON, maximum space heating power setting	and + (1×)	h
Burner ON, maximum domestic hot water setting	and + (2×)	H
Stop test program	+ and –	Actual situation

NOTICE

If an 81-04 error occurs, then do NOT perform a test run on the gas boiler.

10 Maintenance and service

Especially for UK:

After servicing, complete the relevant Service Interval Record section of the Benchmark Checklist located on the backpages of this document.

NOTICE

Maintenance MUST be done by an authorized installer or service agent.

We recommend performing maintenance at least once a year. However, applicable legislation might require shorter maintenance intervals.

10.1 Maintenance safety precautions

DANGER: RISK OF ELECTROCUTION

DANGER: RISK OF BURNING

NOTICE: Risk of electrostatic discharge

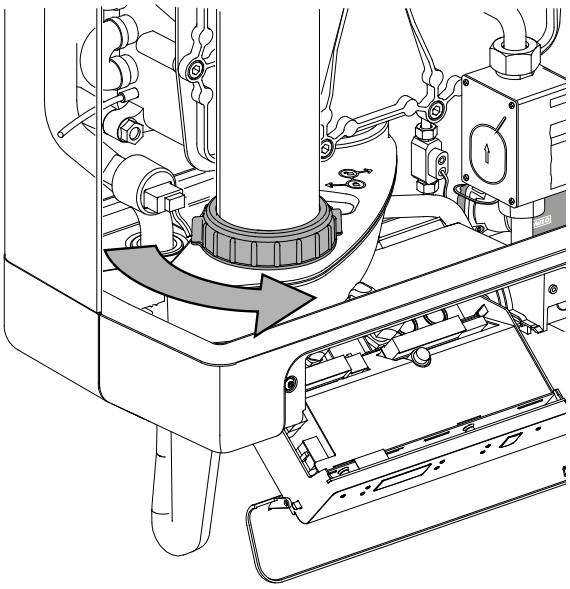
Before performing any maintenance or service work, touch a metal part of the unit in order to eliminate static electricity and to protect the PCB.

10.1.1 Opening the gas boiler

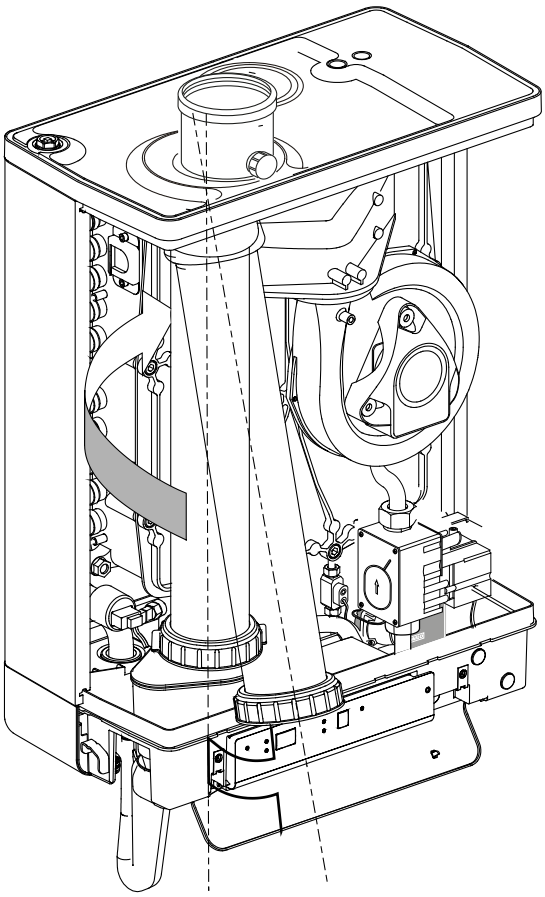
See "6.1.1 To open the gas boiler" on page 11.

10.2 To disassemble the gas boiler

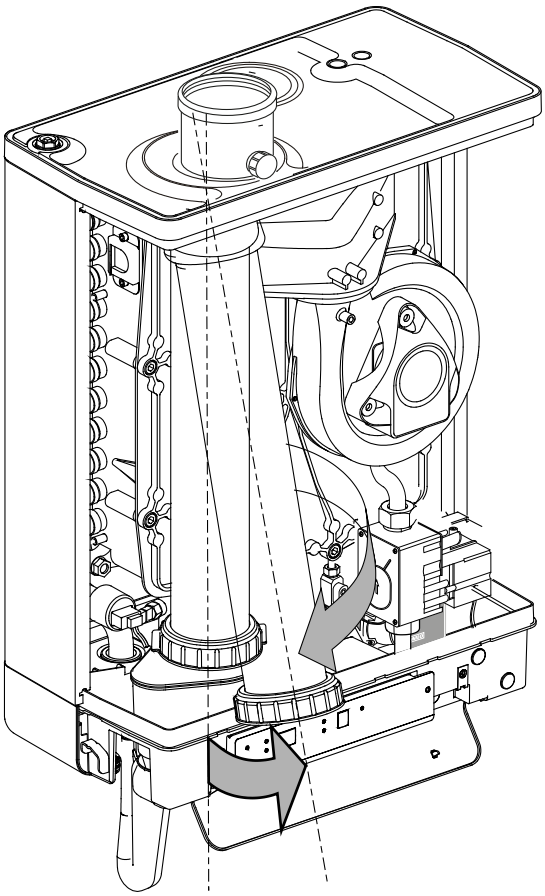
1 Turn off the appliance.
2 Turn off the main power supply of the appliance.
3 Close the gas tap.
4 Remove the front panel.
5 Wait until the appliance has cooled down.
6 Unscrew the coupling nut at the base of the flue pipe by turning counterclockwise.



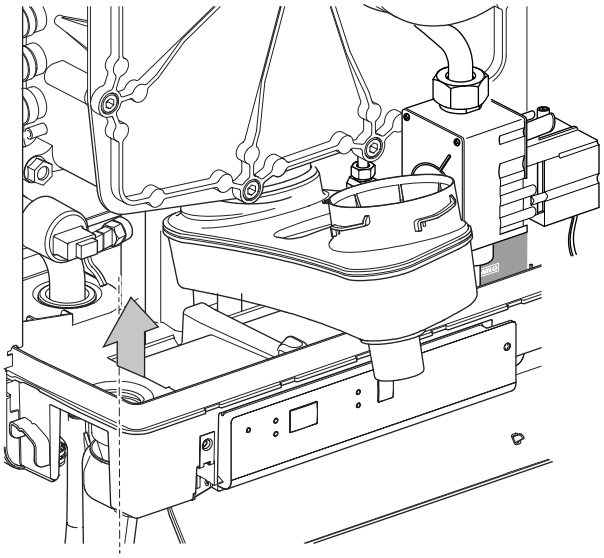
7 Slide the flue pipe upwards by turning it clockwise until the bottom of the pipe is above the condensate drain pan connection.



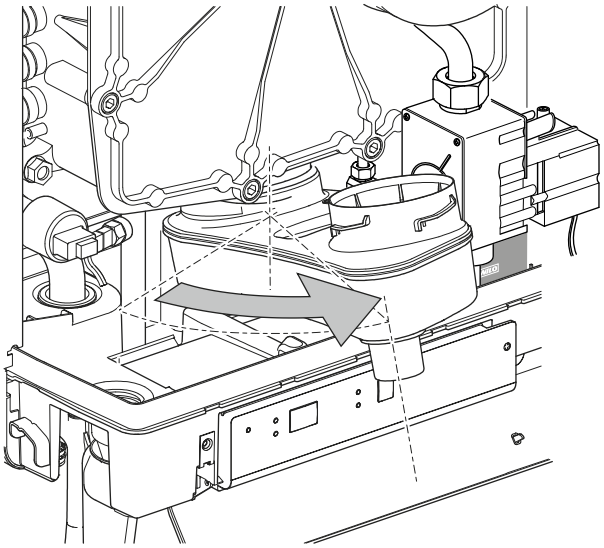
8 Pull the bottom of the pipe forwards and remove the pipe downwards by turning the pipe alternately clockwise and counterclockwise.



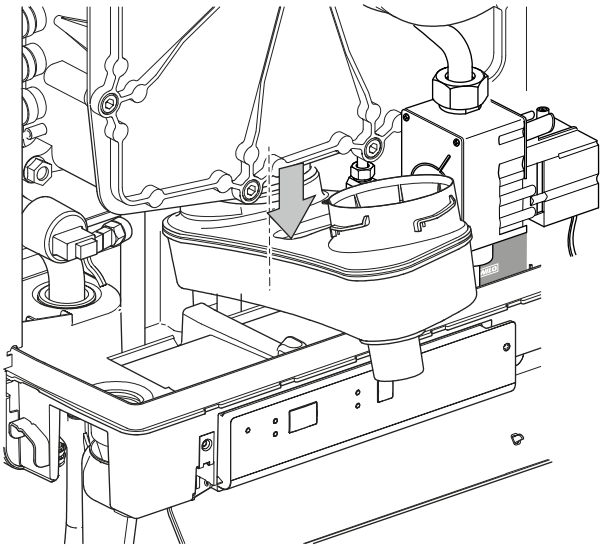
9 Lift the condensate drain pan on the left-hand side from the connection to the condensate trap.



10 Turn it to the right with the condensate trap connection over the edge of the base tray.



11 Push the backside of the condensate drain pan downwards from the connection to the heat exchanger and remove it.



12 Remove the connector from the fan and the ignition unit from the gas valve.

13 Unscrew the coupling below the gas valve.

14 Unscrew the socket head screws from the front cover and remove the socket complete with gas valve and fan to the front.

NOTICE

Make sure that the burner, insulation plate, gas valve, gas supply and fan do NOT get damaged.

10.3 To clean the inside of the gas boiler

1 Clean the heat exchanger from top to bottom with a plastic brush or compressed air.

2 Clean the underside of the heat exchanger.

3 Clean the condensate drain pan with water.

4 Clean the condensate trap with water.

10.4 To assemble the gas boiler

CAUTION

- When fitting the various seals, check them for damage, hardening, tears or hairline tears, and/or discolouration. Replace them when necessary.
- Check the position of the seals.
- Not fitting the sensors S1 and/or S2 or fitting them incorrectly can result in serious damage.
- Warranty will be void by NOT correctly replacing the removed parts.

1 Check the correct position of the seal around the front cover.

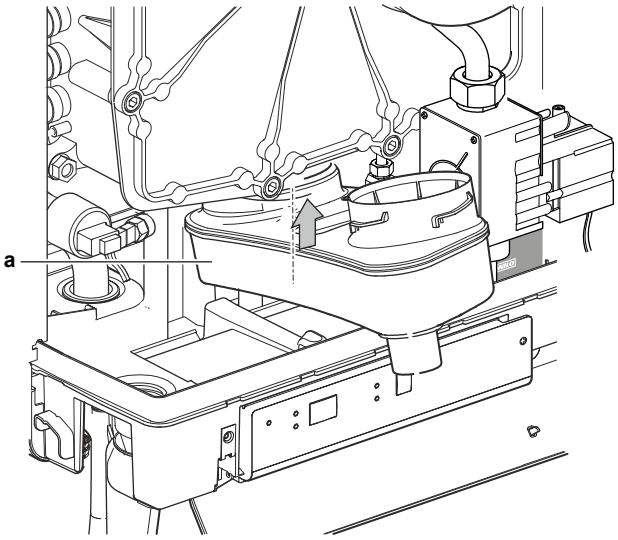
2 Place the front cover on the heat exchanger and secure by using the socket head screws plus serrated lock washers.

3 Tighten the socket head screws equally hand-tight by turning the hex key clockwise.

4 Fit the gas connection below the gas valve.

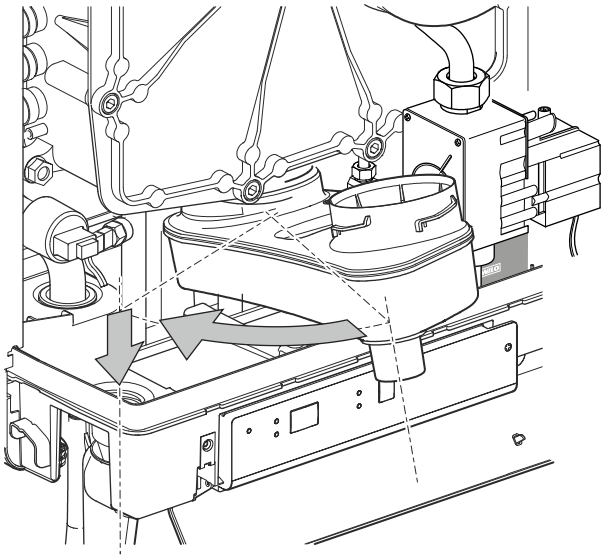
5 Fit the connector to the fan and the ignition unit to the gas valve.

6 Fit the condensate drain by sliding on the exchanger outlet stump with the condensate trap connection still in front of the base tray.



a Base tray

7 Turn the condensate drain to the left and push it downwards into the condensate trap connection. Make sure in doing this that the back of the condensate drain pan comes to rest on the lug of the back of the base tray.



8 Fill the condensate trap with water and fit it to the connection below the condensate drain pan.

9 Slide the flue pipe, turning it counterclockwise, with the top around the flue adapter into the top cover.

10 Insert the bottom into the condensate drain pan and tighten the coupling nut clockwise.

11 Open the gas tap and check the gas connections below the gas valve and on the mounting bracket for leakage.

12 Check the space heating and the water pipes for leakages.

13 Turn on the main power supply.

14 Turn on the appliance by pushing on the ⏻ button.

15 Check the front cover, the fan connection on the front cover and the flue pipe components for leakage.

16 Check the gas/air adjustment.

17 Fit the casing, tighten the 2 screws on the left and right side of the display.

18 Close the display cover.

19 Check the heating and hot water supply.

11 Troubleshooting

11.1 General guidelines

Before starting the troubleshooting procedure, carry out a thorough visual inspection of the unit and look for obvious defects such as loose connections or defective wiring.

11.2 Precautions when troubleshooting

WARNING

- When carrying out an inspection on the switch box of the unit, ALWAYS make sure that the unit is disconnected from the mains. Turn off the respective circuit breaker.
- When a safety device was activated, stop the unit and find out why the safety device was activated before resetting it. NEVER shunt safety devices or change their values to a value other than the factory default setting. If you are unable to find the cause of the problem, call your dealer.

DANGER: RISK OF ELECTROCUTION

WARNING

Prevent hazards due to inadvertent resetting of the thermal cut-out: power to this appliance MUST NOT be supplied through an external switching device, such as a timer, or connected to a circuit that is regularly turned ON and OFF by the utility.

DANGER: RISK OF BURNING

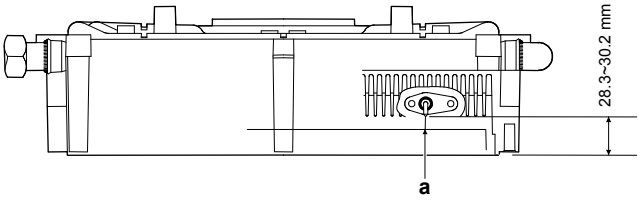
11.3 Solving problems based on symptoms

11.3.1 Symptom: The burner does NOT ignite

Possible causes	Corrective action
Gas tap is closed.	Open the gas tap.
Air in the gas tap.	Remove air from the gas pipe.
Gas supply pressure too low.	Contact the gas supply company.
No ignition.	Replace the ignition electrode.
No spark. Ignition unit on gas valve faulty.	▪ Check the cabling. ▪ Check the spark plug cap. ▪ Replace the ignition unit.
Gas/air adjustment NOT correctly set.	Check the adjustment. See "To check the carbon dioxide setting" on page 28.
Fan faulty.	▪ Check the wiring. ▪ Check the fuse. If necessary, replace the fan.
Fan dirty.	Clean the fan.
Gas valve faulty.	▪ Replace the gas valve. ▪ Re-adjust the gas valve, see "To check the carbon dioxide setting" on page 28.

11.3.2 Symptom: The burner ignites noisily

Possible causes	Corrective action
Gas supply pressure too high.	The house pressure switch may be faulty. Contact the gas company.
Incorrect ignition gap.	▪ Replace the ignition pin. ▪ Check the ignition electrode gap.
Gas/air adjustment NOT correctly set.	Check the setting. See "To check the carbon dioxide setting" on page 28.
Weak spark.	Check the ignition gap. Replace the ignition electrode. Replace the ignition unit on the gas valve.



a Spark gap (±4.5 mm)

11.3.3 Symptom: The burner resonates

Possible causes	Corrective action
Gas supply pressure too low.	The house pressure switch may be faulty. Contact the gas company.
Recirculation of combustion gasses.	Check the flue gas and the air supply.
Gas/air adjustment NOT correctly set.	Check the adjustment. See "To check the carbon dioxide setting" on page 28.

11.3.4 Symptom: No space heating by the gas boiler

Possible causes	Corrective action
Heat pump error	Check the user interface.
Communication problem with the heat pump.	Make sure the communication cable is properly installed.
Incorrect heat pump settings.	Check the settings in the heat pump manual.
The service display displays "-", the gas boiler is switched off.	Switch on the gas boiler with ⏻.
No current (24 V)	▪ Check the wiring. ▪ Check the connector X4.
The burner does NOT fire on space heating: sensor S1 or S2 faulty.	Replace sensor S1 or S2. See "Error codes of the gas boiler" on page 35.
Burner does NOT ignite.	See "11.3.1 Symptom: The burner does NOT ignite" on page 34.

11.3.5 Symptom: The power is reduced

Possible causes	Corrective action
At high rpm, the power has fallen by more than 5%.	▪ Check the appliance and flue system for fouling. ▪ Clean the appliance and flue system.

11.3.6 Symptom: Space heating does NOT reach the temperature

Possible causes	Corrective action
Weather-dependent setpoint setting is incorrect.	Check the setting on the user interface and adjust if necessary.
Temperature is too low.	Increase the space heating temperature.
No circulation in the installation.	Check whether there is circulation. At least 2 or 3 radiators MUST be open.
The boiler power has NOT been correctly set for the installation.	Adjust the power. See "Maximum space heating power setting" on page 27.
No heat transfer as a result of lime scale or fouling in the heat exchanger.	Descale or flush the heat exchanger on the space heating side.

11.3.7 Symptom: No domestic hot water

Not applicable for Switzerland

Possible causes	Corrective action
The burner is NOT firing on domestic hot water: S3 faulty.	Replace S3.
The burner does NOT ignite.	See "11.3.1 Symptom: The burner does NOT ignite" on page 34.

11.3.8 Symptom: Hot water does NOT reach the temperature (no tank installed)

Not applicable for Switzerland

Possible causes	Corrective action
Domestic hot water flow is too high.	Adjust the inlet assembly.
Temperature setting for water circuit is too low.	Increase the domestic hot water setpoint on the domestic hot water homepage of the user interface.
No heat transfer as a result of lime scale or fouling in the heat exchanger domestic hot water side.	Descale or flush the exchanger domestic hot water side.
Cold water temperature <10°C.	The water inlet temperature is too low.
The domestic hot water temperature fluctuates between hot and cold.	▪ The flow is too low. To guarantee comfort, a minimum water flow of 5 l/min is recommended. ▪ Increase the domestic hot water setpoint on the domestic hot water homepage of the user interface.

11.3.9 Symptom: Hot water does NOT reach the temperature (tank installed)

Possible causes	Corrective action
The gas boiler has an error code.	Check the display of the gas boiler for more information.
The outdoor unit has an error code.	Check for possible errors on the indoor unit.
The 3-way valve is not working correctly.	▪ Check the installation of the 3-way valve. ▪ In case of domestic hot water operation, the flow should be directed to the tank.

11.4 Solving problems based on error codes

When a problem happens, an error code appears on the user interface. It is important to understand the problem and to take measures before resetting an error code. This should be done by a licensed installer or by your local dealer.

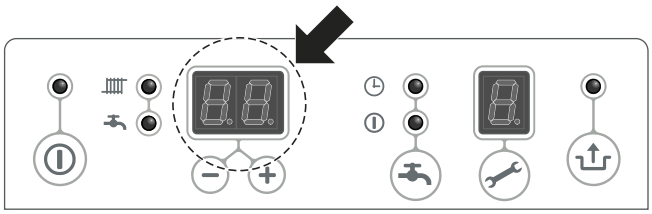
This chapter gives you an overview of all error codes and the content of the error code as it appears on the user interface.

For a more detailed troubleshooting guideline for each error, please see the service manual.

11.4.1 Error codes: Overview

Error codes of the gas boiler

The controller on the gas boiler detects faults and indicates them on the display by error codes.



If the LED is flashing, the controller has detected a problem. Once the problem is rectified, the controller can be restarted by pressing the ↑ button.

Following table shows a list of error codes and the possible solutions.

Error code	Cause	Possible solution
10, 11, 12, 13, 14	Sensor fault S1	▪ Check wiring ▪ Replace S1
20, 21, 22, 23, 24	Sensor fault S2	▪ Check wiring ▪ Replace S2
0	Sensor fault after self-check	Replace S1 and/or S2
1	Temperature too high	▪ Air in installation ▪ Pump is NOT running ▪ Insufficient flow in installation ▪ Radiators are closed ▪ Pump setting is too low
2	S1 and S2 interchanged	▪ Check cable set ▪ Replace S1 and S2

Error code	Cause	Possible solution
4	No flame signal	▪ Gas tap is closed ▪ No or incorrect ignition gap ▪ Gas supply pressure is too low or fails ▪ Gas valve or ignition unit is NOT powered
5	Poor flame signal	▪ Condensate drain blocked ▪ Check adjustment of gas valve
6	Flame detection fault	▪ Replace ignition cable and spark plug cap ▪ Replace ignition unit ▪ Replace boiler controller
8	Incorrect fan speed	▪ Fan catching on casing ▪ Wiring between fan and casing ▪ Check wiring for poor wire contact ▪ Replace fan
29, 30	Gas valve relay fault	Replace boiler controller

12 Glossary

Dealer

Sales distributor for the product.

Authorized installer

Technical skilled person who is qualified to install the product.

User

Person who is owner of the product and/or operates the product.

Applicable legislation

All international, European, national and local directives, laws, regulations and/or codes that are relevant and applicable for a certain product or domain.

Service company

Qualified company which can perform or coordinate the required service to the product.

Installation manual

Instruction manual specified for a certain product or application, explaining how to install, configure and maintain it.

Operation manual

Instruction manual specified for a certain product or application, explaining how to operate it.

Maintenance instructions

Instruction manual specified for a certain product or application, which explains (if relevant) how to install, configure, operate and/or maintain the product or application.

Accessories

Labels, manuals, information sheets and equipment that are delivered with the product and that need to be installed according to the instructions in the accompanying documentation.

Optional equipment

Equipment made or approved by Daikin that can be combined with the product according to the instructions in the accompanying documentation.

Field supply

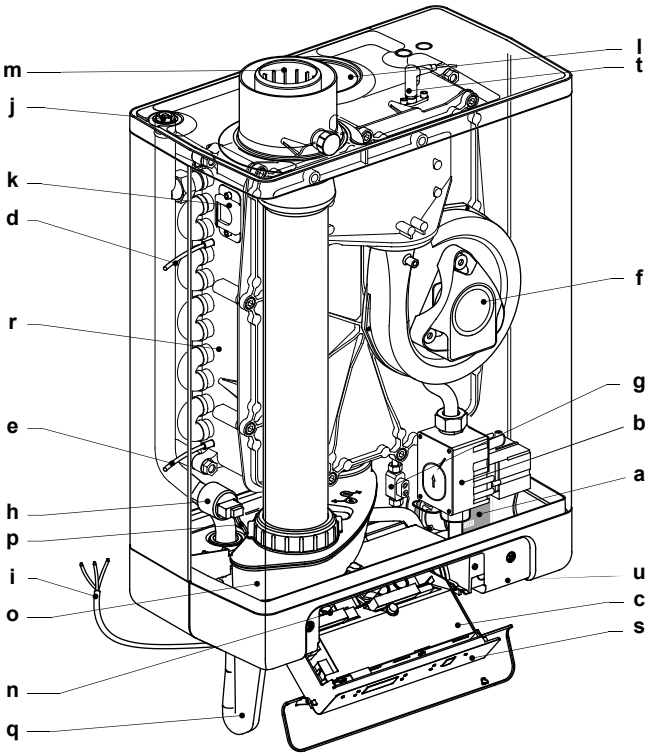
Equipment NOT made by Daikin that can be combined with the product according to the instructions in the accompanying documentation.

13 Technical data

A **subset** of the latest technical data is available on the regional Daikin website (publicly accessible). The **full set** of latest technical data is available on the Daikin Business Portal (authentication required).

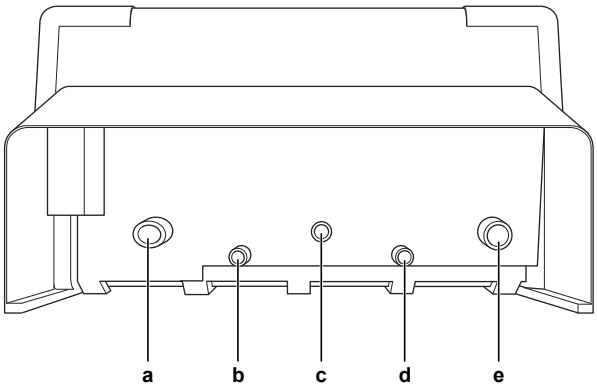
13.1 Components

13.1.1 Components: Gas boiler



a Space heating pump
b Gas valve
c Boiler control panel
d Sensor S1 (in)
e Sensor S2 (out)
f Fan
g Flow sensor
h Space heating pressure sensor
i Mains lead 230 V AC with earthed plug
j Manual air bleed
k Sight glass
l Air supply cap (use ONLY when using twin pipe flue system)
m Flue pipe adapter (use ONLY in combination with the accompanying elbow in flue sets)
n Connection block/terminal strip X4
o Condensate drain pan
p Domestic Hot water sensor S3
q Condensate S3
r Heat exchanger
s Operating panel and read-out
t Ionisation/ignition electrode
u Position of data plate

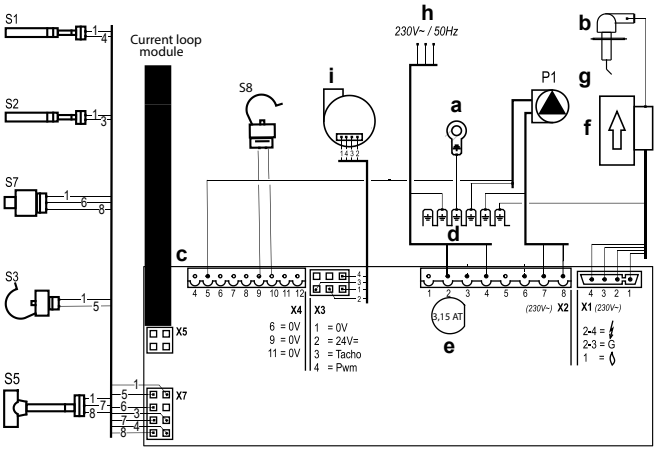
Bottom view



a Space heating outlet
b Instant domestic hot water outlet (not applicable for Switzerland)
c Gas inlet
d Instant domestic hot water inlet (not applicable for Switzerland)
e Space heating inlet

13.2 Wiring diagram

13.2.1 Wiring diagram: Gas boiler



a Earth connection heat exchanger
b Spark cover
c Boiler controller
d Earth lips boiler controller
e Fuse (3.15 A T)
f Gas valve and ignition unit
g Ignition/ionization pin
h Main voltage
i Fan
P1 Space heating pump
S1 Supply sensor
S2 Return sensor
S3 Domestic hot water sensor (not applicable for Switzerland)
S5 Flow sensor
S7 Space heating water pressure sensor
S8 Flow sensor
X2 Main power supply (2=l (BRN), 4=N (BLU))
X3 Power supply fan (230 V)
X5 Boiler communication cable
X7 Sensor connection

13.3 Technical specifications

13.3.1 Technical specifications: Gas boiler

General

Technical data	EHY2KOMB28AA	EHY2KOMB32AA
Function	Heating – Domestic hot water	
Initial gas pressure	G20 – 20 mbar; G31: 28-50 mbar	
Suitable for gas	UK, IT : II2H3P FR : II2Esi3P DE : II2ELL3P	
Domestic water (not applicable for Switzerland)		
Heating power domestic hot water	7.2~29.1 kW	7.6~32.7 kW
Domestic hot water flow rate (setpoint 60°C)	7.5 l/min	9 l/min
Domestic hot water flow rate (setpoint 40°C)	12.5 l/min	15 l/min
Maximum water pressure	8 bar	
Efficiency domestic hot water (net calorific value)	105%	
Operation range	40~65°C	
Domestic water threshold	2 l/min	
Effective unit wait time	<1 sec	
Domestic water side pressure difference	See "Flow resistance graph for appliance domestic hot water circuit" on page 14.	
Space heating		
Nominal load: upper value[(a)]	8.0~26.3 kW	8.3~30.0 kW
Nominal load: lower value[(a)]	7.1~23.7 kW	7.6~27.0 kW
Output at 80/60°C Min - Nom	7,1~23.1 kW	7.4~26.6 kW
Output at 50/30°C Min - Nom	7,7~25.4 kW	8.2~28.9 kW
Nominal output	7.7~23.1 kW	8.2~26.6 kW
Efficiency space heating (net calorific value 80/60)	97%	98%
Efficiency space heating (net calorific value 37/30 (30%))	>107%	
Operation range	30~90°C	
Pressure drop	See ESP curve in the installer reference guide.	
Maximum space heating water pressure	3 bar	
Maximum space heating water temperature	90°C	
Heat pump module	EJHA04AAV3	
Device category	B23, B33, C13(x), C33(x), C43(x), C53(x), C63(x), C83(x), C93(x)	
Gas		
Gas consumption (G20)	0.74~3.02 m^3/h	0.79~3.39 m^3/h
Gas consumption (G25)	0.84~3.46 m^3/h	0.89~3.92 m^3/h
Gas consumption (G31)	0.28~1.15 m^3/h	0.30~1.29 m^3/h
Maximum flue gas temperature domestic hot water	70°C	
Massive flow glue gas (maximum)	13.6 g/s	15.3 g/s
Available fan pressure	75 Pa	
NOx class	6	
Casing		
Colour	White – RAL9010	
Material	Pre-coated sheet metal	
Dimensions		
Packing (H×W×D)	760×490×270 mm	820×490×270 mm
Unit (H×W×D)	650×450×240 mm	710×450×240 mm
Machine net weight	33 kg	36 kg
Packed machine weight	34 kg	37 kg
Packing material	Carton/PP (straps)	
Packing material (weight)	1 kg	
Main components		

Technical data	EHY2KOMB28AA	EHY2KOMB32AA
Water side heat exchanger	Aluminium, copper	
Space heating water circuit		
Space heating piping connections	Ø22 mm	
Piping material	Copper	
Safety valve	Not included	
Manometer	Yes	
Drain/fill valve	No (optional in connection set)	
Shut-off valves	No (optional in connection set)	
Air purge valve	Yes (manual)	
Maximum pressure space heating circuit	3 bar	
Domestic hot water circuit (not applicable for Switzerland)		
Domestic hot water piping connections	Ø15 mm	
Piping material	Copper	
Gas connection	Ø15 mm	
Flue gas/combustion air connection	Concentric connection Ø60/100 mm	
Electrical		
Power supply voltage	230 V	
Power supply phase	1~	
Power supply frequency	50 Hz	
IP class	IP44 (B23, B33=IP20)	
Maximum electrical power consumption	110 W	
Electrical power consumption (standby)	2 W	
Radio module		
Power supply	230 V AC mains powered	
Frequency range	868.3 MHz	
Effective Radiated Power (ERP)	12.1 dBm	

(a) Maximum space heating power is set at the factory at 60% of the highest value

Energy-related products specifications

Technical data	EHY2KOMB28AA	EHY2KOMB32AA
Condensing boiler	Yes	
Low-temperature boiler	No	
B1 boiler	No	
Cogeneration space heater	No	
Combination heater	Yes	
Space heating efficiency class	A	
Rated heat output (P_{rated})	23 kW	27 kW
Useful heat output at 30% of rated heat output and low-temperature regime	7.7 kW	8.8 kW
Seasonal space heating energy efficiency	93%	
Useful efficiency at rated heat output and high-temperature regime	87.8%	88.9%
Useful efficiency at 30% of rated heat output and low-temperature regime	97.2%	97.6%
Auxiliary electricity consumption		
At full load (el_{max})	0.045 kW	
At part load (el_{min})	0.015 kW	
In standby mode (P_{SB})	0.002 kW	
Other items		
Standby heat loss (P_{stby})	0.038 kW	
Ignition burner power consumption (P_{ign})	n/a	
Annual energy consumption (Q_{HE})	69 GJ	80 GJ
Sound power level, indoors (at maximum heat output) (L_{WA})	45 dB	50 dB

13 Technical data

Technical data	EHY2KOMB28AA	EHY2KOMB32AA
Emissions of nitrogen oxides (NO_X)	49 mg/kWh	53 mg/kWh
Domestic hot water parameters		
Declared load profile	XL	
Daily electricity consumption	0.077 kWh	0.073 kWh
Annually electricity consumption	17 kWh	16 kWh
Water heating energy efficiency	87%	
Water heating energy efficiency class	A	
Daily fuel consumption	22.61 kWh	22.51 kWh
Annual fuel consumption	4975 kWh	4952 kWh

Gas category and supply pressure

Country	Gas category	Default setting	After conversion to G25	After conversion to G31
Germany	II2ELL3P	G20 (20 mbar)	G25 (25 mbar)	G31 (28~50 mbar)
Belgium[1]	I2E(s)3Pc, I3P	G20 (20 mbar)	G25 (25 mbar)	G31 (30 mbar)
France	II2Esi3P	G20 (20 mbar)	G25 (25 mbar)	G31 (30 mbar)
Italy	II2H3P	G20 (20 mbar)	—	G31 (30 mbar)
United Kingdom	II2H3P	G20 (20 mbar)	—	G31 (30~37 mbar)
Spain	II2H3P	G20 (20 mbar)	—	G31 (30~37 mbar)
Austria	II2H3P	G20 (20 mbar)	—	G31 (30~50 mbar)
Bulgaria	II2H3P	G20 (20 mbar)	—	G31 (30 mbar)
Czech Republic	II2H3+, II2H3P	G20 (20 mbar)	—	G31 (37 mbar)
Croatia	II2H3P	G20 (20 mbar)	—	G31 (30 mbar)
Hungary	II2HS3P	G25 (25 mbar)	—	G31 (30 mbar)
Slovakia	II2H3P	G20 (20 mbar)	—	G31 (30~50 mbar)
Slovenia	II2H3P	G20 (20 mbar)	—	G31 (37 mbar)
Portugal	II2H3+	G20 (20 mbar)	—	G31 (37 mbar)
Greece	II2H3+	G20 (20 mbar)	—	G31 (37 mbar)
Cyprus	II2H3+	G20 (20 mbar)	—	G31 (37 mbar)
Poland	II2H3P	G20 (20 mbar)	—	G31 (37 mbar)
Ireland	II2H3+	G20 (20 mbar)	—	G31 (37 mbar)
Turkey	II2H3+	G20 (20 mbar)	—	G31 (37 mbar)
Switzerland	II2H3+	G20 (20 mbar)	—	G31 (37 mbar)
Malta	I3P	—	—	G31 (30 mbar)
Lithuania	II2H3P	G20 (20 mbar)	—	G31 (30 mbar)
Latvia	II2H3P	G20 (20 mbar)	—	G31 (30 mbar)
Denmark	II2H3P	G20 (20 mbar)	—	G31 (30 mbar)
Romania	II2H3P	G20 (20 mbar)	—	G31 (30 mbar)

(1) Any modifications to the gas valve MUST be performed by a certified representative of the manufacturer. For more information, contact your dealer.

GAS BOILER SYSTEM COMMISSIONING CHECKLIST

This Commissioning Checklist is to be completed in full by the competent person who commissioned the boiler as a means of demonstrating compliance with the appropriate Building Regulations and then handed to the customer to keep for future reference.

Failure to install and commission according to the manufacturer's instructions and complete this Benchmark Commissioning Checklist will invalidate the warranty. This does not affect the customer's statutory rights.

Customer name:	Telephone number:
Address:	
Boiler make and model:	
Boiler serial number:	
Commissioned by (PRINT NAME):	Gas Safe register number:
Company name:	Telephone number:
Company address:	
	Commissioning date:
To be completed by the customer on receipt of a Building Regulations Compliance Certificate*	
Building Regulations Notification Number (if applicable):	

CONTROLS (tick the appropriate boxes)				
Time and temperature control to heating	Room thermostat and programmer/timer		Programmable room thermostat	
	Load/weather compensation		Optimum start control	
Time and temperature control to hot water	Cylinder thermostat and programmer/timer		Combination Boiler	
Heating zone valves	Fitted		Not required	
Hot water zone valves	Fitted		Not required	
Thermostatic radiator valves	Fitted		Not required	
Automatic bypass to system	Fitted		Not required	
Boiler interlock			Provided	

ALL SYSTEMS				
The system has been flushed and cleaned in accordance with BS7593 and boiler manufacturer's instructions			Yes	
What system cleaner was used?				
What inhibitor was used?		Quantity		litres
Has a primary water system filter been installed?		Yes	No	

CENTRAL HEATING MODE measure and record:			
Gas rate	m^3/hr	**OR**	ft^3/hr
Burner operating pressure (if applicable)	mbar	**OR** Gas inlet pressure	mbar
Central heating flow temperature			°C
Central heating return temperature			°C

COMBINATION BOILERS ONLY			
Is the installation in a hard water area (above 200ppm)?	Yes	No	
If yes, and if required by the manufacturer, has a water scale reducer been fitted?	Yes	No	
What type of scale reducer has been fitted?			
DOMESTIC HOT WATER MODE Measure and Record:			
Gas rate	m^3/hr	**OR**	ft^3/hr
Burner operating pressure (at maximum rate)	mbar	**OR** Gas inlet pressure at maximum rate	mbar
Cold water inlet temperature			°C
Hot water has been checked at all outlets	Yes	Temperature	°C
Water flow rate			l/min

CONDENSING BOILERS ONLY	
The condensate drain has been installed in accordance with the manufacturer's instructions and/or BS5546/BS6798	Yes

ALL INSTALLATIONS							
Record the following:	At max. rate:	CO	ppm	**AND**	CO/CO_2	Ratio	
	At min. rate: (where possible)	CO	ppm	**AND**	CO/CO_2	Ratio	
The heating and hot water system complies with the appropriate Building Regulations							Yes
The boiler and associated products have been installed and commissioned in accordance with the manufacturer's instructions							Yes
The operation of the boiler and system controls have been demonstrated to and understood by the customer							Yes
The manufacturer's literature, including Benchmark Checklist and Service Record, has been explained and left with the customer							Yes

Commissioning Engineer's Signature
Customer's Signature
(To confirm satisfactory demonstration and receipt of manufacturer's literature)

*All installations in England and Wales must be notified to Local Authority Building Control (LABC) either directly or through a Competent Persons Scheme. A Building Regulations Compliance Certificate will then be issued to the customer.

benchmark
COLLECTIVE MARK
THE MARK OF QUALITY FOR THE INSTALLATION, COMMISSIONING AND SERVICING OF DOMESTIC HEATING AND HOT WATER SYSTEMS

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SERVICE RECORD

It is recommended that your heating system is serviced regularly and that the appropriate Service Interval Record is completed.

Service Provider

Before completing the appropriate Service Record below, please ensure you have carried out the service as described in the manufacturer's instructions. Always use the manufacturer's specified spare part when replacing controls.

SERVICE 01						Date:
Engineer name:						
Company name:						
Telephone No:						
Gas safe register No:						
Record:	At max. rate:	CO	ppm	**AND**	CO_2 %	
	At min. rate: (Where Possible)	CO	ppm	**AND**	CO_2 %	
Comments:						
Signature						

SERVICE 02						Date:
Engineer name:						
Company name:						
Telephone No:						
Gas safe register No:						
Record:	At max. rate:	CO	ppm	**AND**	CO_2 %	
	At min. rate: (Where Possible)	CO	ppm	**AND**	CO_2 %	
Comments:						
Signature						

SERVICE 03						Date:
Engineer name:						
Company name:						
Telephone No:						
Gas safe register No:						
Record:	At max. rate:	CO	ppm	**AND**	CO_2 %	
	At min. rate: (Where Possible)	CO	ppm	**AND**	CO_2 %	
Comments:						
Signature						

SERVICE 04						Date:
Engineer name:						
Company name:						
Telephone No:						
Gas safe register No:						
Record:	At max. rate:	CO	ppm	**AND**	CO_2 %	
	At min. rate: (Where Possible)	CO	ppm	**AND**	CO_2 %	
Comments:						
Signature						

SERVICE 05						Date:
Engineer name:						
Company name:						
Telephone No:						
Gas safe register No:						
Record:	At max. rate:	CO	ppm	**AND**	CO_2 %	
	At min. rate: (Where Possible)	CO	ppm	**AND**	CO_2 %	
Comments:						
Signature						

SERVICE 06						Date:
Engineer name:						
Company name:						
Telephone No:						
Gas safe register No:						
Record:	At max. rate:	CO	ppm	**AND**	CO_2 %	
	At min. rate: (Where Possible)	CO	ppm	**AND**	CO_2 %	
Comments:						
Signature						

SERVICE 07						Date:
Engineer name:						
Company name:						
Telephone No:						
Gas safe register No:						
Record:	At max. rate:	CO	ppm	**AND**	CO_2 %	
	At min. rate: (Where Possible)	CO	ppm	**AND**	CO_2 %	
Comments:						
Signature						

SERVICE 08						Date:
Engineer name:						
Company name:						
Telephone No:						
Gas safe register No:						
Record:	At max. rate:	CO	ppm	**AND**	CO_2 %	
	At min. rate: (Where Possible)	CO	ppm	**AND**	CO_2 %	
Comments:						
Signature						

SERVICE 09						Date:
Engineer name:						
Company name:						
Telephone No:						
Gas safe register No:						
Record:	At max. rate:	CO	ppm	**AND**	CO_2 %	
	At min. rate: (Where Possible)	CO	ppm	**AND**	CO_2 %	
Comments:						
Signature						

SERVICE 10						Date:
Engineer name:						
Company name:						
Telephone No:						
Gas safe register No:						
Record:	At max. rate:	CO	ppm	**AND**	CO_2 %	
	At min. rate: (Where Possible)	CO	ppm	**AND**	CO_2 %	
Comments:						
Signature						

*All installations in England and Wales must be notified to Local Authority Building Control (LABC) either directly or through a Competent Persons Scheme. A Building Regulations Compliance Certificate will then be issued to the customer.

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14 Disposal

NOTICE

Do NOT try to dismantle the system yourself: dismantling of the system, treatment of the refrigerant, oil and other parts MUST comply with applicable legislation. Units MUST be treated at a specialised treatment facility for reuse, recycling and recovery.

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DAIKIN EUROPE N.V.
Zandvoordestraat 300, B-8400 Oostende, Belgium

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