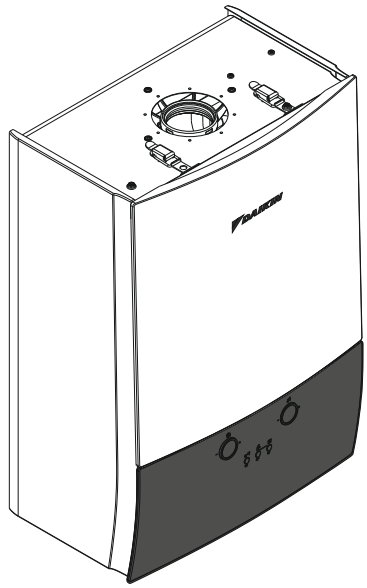
DAIKIN

INSTALLATION MANUAL

WALL-MOUNTED CONDENSING COMBI BOILER



MODELS

D2CND024-A0

Installation Manual
Wall Mounted Condensing Combi Boiler

English

CONTENTS

INTRODUCTION

About the documentation

The instructions contained in this document are intended to guide you through the installation of the appliance. Damage caused by non-observance of these instructions are not under the responsibility of DAIKIN.

- ❒ The original documentation is written in English. All other languages are translations.
- ❒ The precautions described in this document are written for installers and they cover very important topics. Follow them carefully.
- ❒ Please read the operation manual and installation manual prior to use and keep them for future reference.

Nameplate

You can find data about the appliance on its nameplate. Nameplate is located at the bottom of the right cover of the appliance.

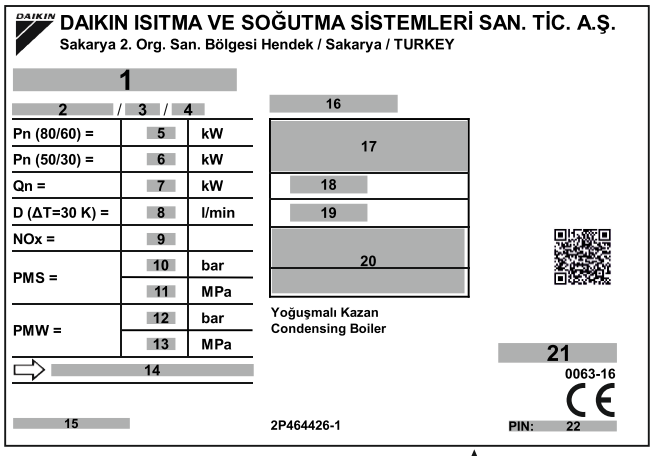
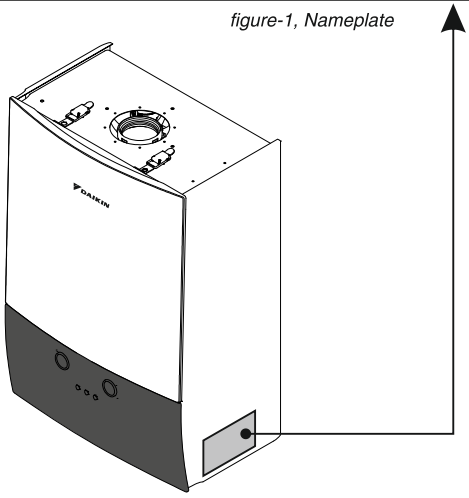


figure-1, Nameplate



1 Product number
2 Electrical supply
3 Max. electrical power consump.
4 Degree of Protection
5 Nominal Heat Output @ 80/60
6 Nominal Heat Output @ 50/30
7 Nominal heat input
8 Hot water amount @ DT=30
9 NO_x class
10 Maximum CH pressure (bar)
11 Maximum CH pressure (Mpa)
12 Max DHW pressure (bar)
13 Max DHW pressure (Mpa)
14 Country of destination(s)
15 Country of origin
16 Serial number
17 Appliance Type
18 Efficiency class
19 Gas category
20 Gas type and supply pressure
21 Model name
22 PIN number

Symbols on the package


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


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


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

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

Meaning of warnings and symbols used in this document


DANGER

Indicates a situation that results in death or serious injury.


WARNING

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


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.

Safety instructions

These instructions are exclusively designed for qualified competent persons.

- Work on gas appliances must only be carried out by a qualified gas fitter.
- Work on electrical equipment must only be carried out by a qualified electrician.
- The system must be commissioned by a qualified competent person.


Warning

A qualified person shall explain the operating principles and the use of the appliance to the user. The user is not allowed to perform any modifications, maintenance or repairs on the appliance, unless otherwise stated, or have the such performed by unauthorised third parties. Otherwise, the appliance warranty becomes void.


Danger

Isolate the boiler from the power mains before working on it.


Warning

Appliance installation, commissioning, repair, configuration and service must be performed by qualified competent persons in accordance with local standards and regulations. Incorrect installation of this appliance may harm the user and his/her surroundings. The manufacturer is not responsible for any malfunctions and/or damage that may occur this way.


Danger

Flammable fluids and materials must be stored at least 1 metre away from the boiler.


Warning

To ensure faultless operation, long term availability of all functions and long working life of the boiler only use original spares.

APPLIANCE INFORMATION

This Daikin product is a wall-mounted gas-fired condensing combi boiler that can supply heat to central heating systems, as well as supply domestic hot water. Depending on settings, it is possible to use the appliance solely for hot water or solely for central heating. Hot water supply type is instantaneous which is provided by a plate heat exchanger.

A control unit, which contains a user interface, controls the ignition, safety systems, and other actuators. User interaction is provided via that user interface, which is composed of an LCD screen, push-buttons, and two dials, and which is located on the front cover of the appliance.

Safety systems of the appliance

The appliance is equipped with several safety systems, to protect it against dangerous conditions:

Flue safety system: This is controlled by the flue gas temperature sensor located on the flue outlet part of the boiler. It is activated when the flue gas temperature exceeds safety limits.

Overheating safety system: This is controlled by the safety limiting thermostat. It is located on the main heat exchanger and stops the appliance when the flow temperature reaches **100 °C,** to avoid boiling of the water, which may damage the appliance.

Pump anti-blockage system: The pump operates for 30 seconds every 24 hours during long periods of inactivity to ensure it does not get stuck. To enable this function, the appliance must be connected to the power supply.

Three-way valve anti-blockage system: In cases where the appliance is non-operational for prolonged periods of time, the three-way valve switches its position every 24 hours to prevent it from getting stuck. To enable this function, the appliance must be connected to the power supply.

Safety against dry operation: This is controlled by the pressure sensor. It turns off the appliance and ensures system safety when the water pressure of the heating installation falls below 0.6 bar for any reason.

Flame ionisation control: This is controlled by the ionisation electrode. It checks whether a flame forms on the burner surface or not. If there is no flame, it turns the appliance off to stop gas flow and warns the user.

High pressure protection:
1. Pressure Sensor: When heating system pressure reaches 2.8 bar, control unit stops heating operation thus preventing the pressure from rising.

2.Safety valve: When the water pressure of the heating circuit exceeds 3 bar, some water is automatically drained from the safety valve to keep the pressure below 3 bar thus protecting the boiler and heating installation.

Automatic air vents: There are two air vents; one on the pump, other on the heat exchanger. They help discharging the air inside the installation and heating circuit to avoid air traps and consequent operational problems.

Frost protection safety system: This function protects the appliance and heating installation from frost damages. It is controlled by the flow temperature sensor which is located at the outlet of the main heat exchanger. This protection activates the boiler pump when the water temperature drops below 13°C and it activates the burner when the water temperature drops below 8°C. The appliance keeps running until the temperature reaches 30°C. To enable this function, the appliance must be connected to the power supply and its main gas valve must be open. Any damage caused by frost is not covered by the warranty.

Low voltage safety system: This is controlled by the control unit. When the supply voltage drops below 170 Volt, the boiler goes to error mode. It is a blocking error and the boiler will operate without reset after supply voltage is above 180 Volt. It is recommended to use a voltage regulator of suitable power and type in locations with voltage fluctuations below this limit for faultless operation.

High electric supply current protection system: A fuse on the control unit protects equipment and wiring against the damaging effects of electrical faults which cause excess currents, and to disable equipment which is faulty. The fuse "blows" (opens) when the current carried exceeds the rated value for an excessive time.

Automatic by-pass system: This ensures that the flow is at all times continued, to avoid overheating of the heat exchanger. This system is also supported with a special by-pass function in the control unit software.

Combustion control safety system: Boiler control unit monitors the flame to avoid bad combustion any risky condition. It also makes self-inspection against its own malfunctioning and to keep emissions always at a low level.

Dimensions

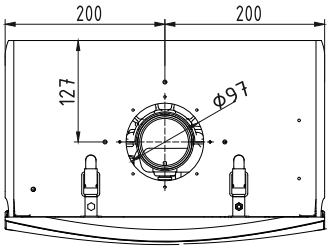


figure-2, Top view

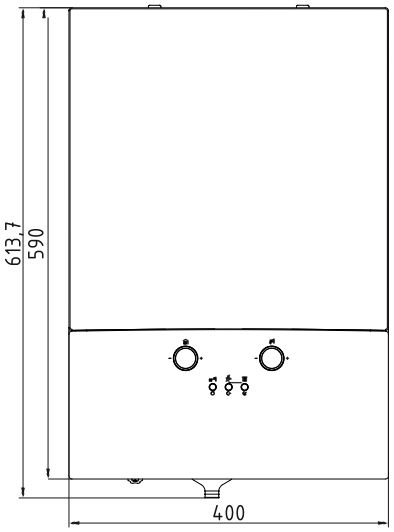


figure-3, Front view

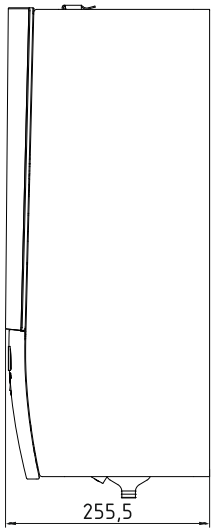


figure-4, Right side view

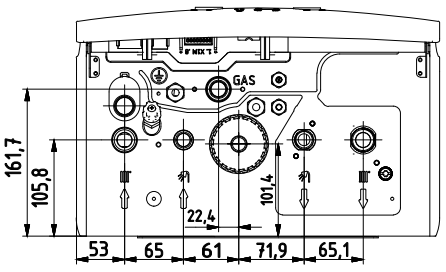
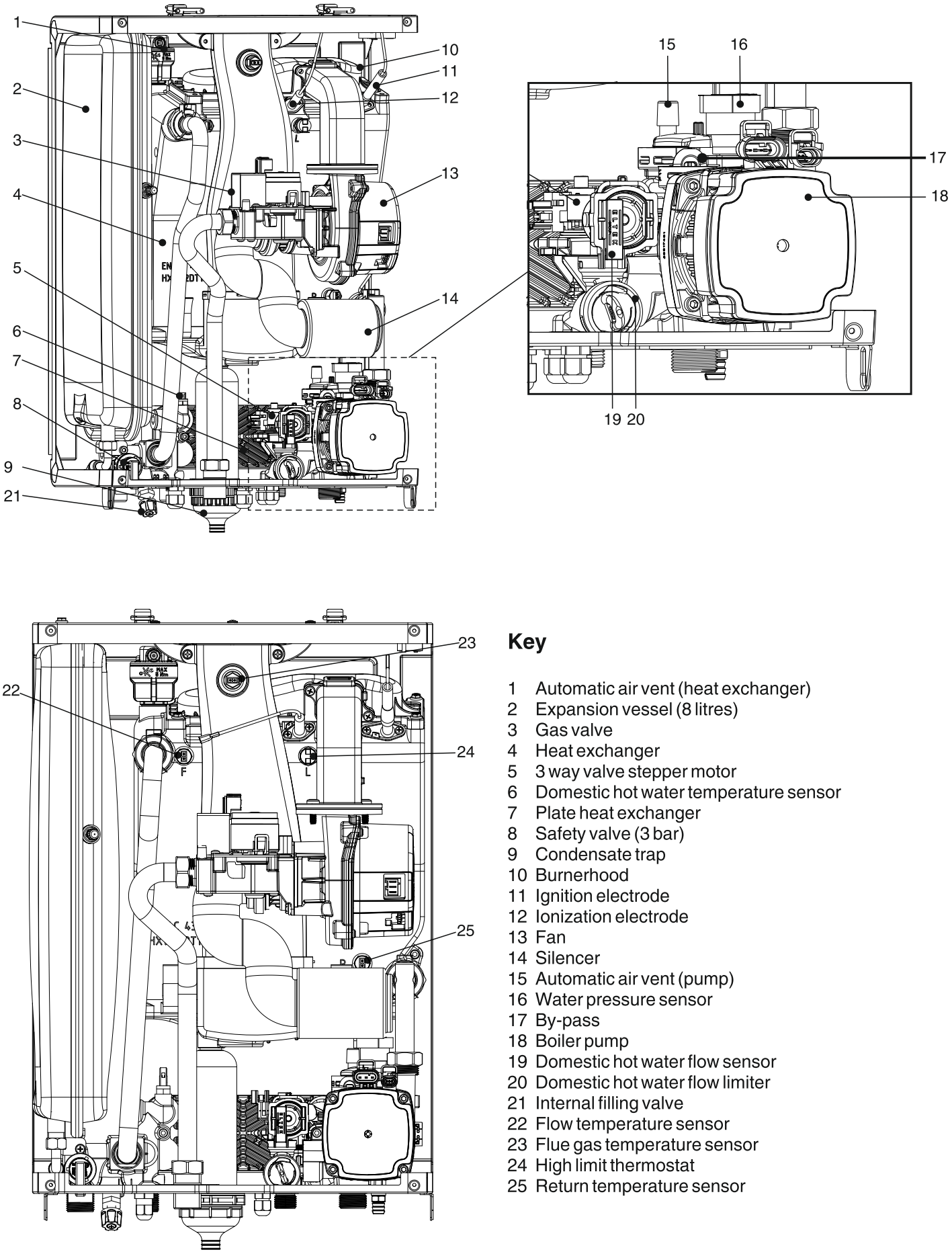


figure-5, Bottom view

Appliance structure and components



Key

1 Automatic air vent (heat exchanger)
2 Expansion vessel (8 litres)
3 Gas valve
4 Heat exchanger
5 3 way valve stepper motor
6 Domestic hot water temperature sensor
7 Plate heat exchanger
8 Safety valve (3 bar)
9 Condensate trap
10 Burnerhood
11 Ignition electrode
12 Ionization electrode
13 Fan
14 Silencer
15 Automatic air vent (pump)
16 Water pressure sensor
17 By-pass
18 Boiler pump
19 Domestic hot water flow sensor
20 Domestic hot water flow limiter
21 Internal filling valve
22 Flow temperature sensor
23 Flue gas temperature sensor
24 High limit thermostat
25 Return temperature sensor

figure-6, Structure and components

Technical specifications

Technical Specifications	Unit	D2CND024-A0
Heat Input Range(Qn)	kW	2,9 - 23.5
Nominal Heat Output Range (Pn) at 80-60 °C	kW	2,8 - 22.8
Nominal Heat Output Range (Pn) at 50-30 °C	kW	3,1 - 24.0
Efficiency (30% partial load at 30 °C return temperature)	%	108,7
Sound Power Level	dB(A)	49
Central Heating Circuit		
Central Heating Efficiency class (Ecodesign Lot1)	-	A
Operating Pressure (min./max.)	bar	0.6 - 3.0
Heating Circuit Temperature Interval (min./max.)	°C	35 - 80
Domestic Hot Water Circuit		
Hot Water Amount ΔT:30°C	litre/min	11.3
Hot Water Amount ΔT:35°C	litre/min	9.7
Water Installation Pressure (min./max.)	bar	0.5 - 10.0
Domestic Hot Water Temperature Interval (min./max.)	°C	35 - 60
Domestic Hot Water Circuit Type	-	instantaneous
Domestic Hot Water Profile (according to Ecodesign Lot2)	-	XL
General		
Expansion Vessel Initial Pressure	bar	1
Expansion Vessel Capacity	litre	8
Electrical Connection	VAC/Hz	230/50
Electrical Power Consumption (max.)	W	86
Standby Electrical Power Consumption	W	3,5
Electrical Protection Class	-	IPX5D
Boiler Weight	kg	27
Boiler Dimensions (Height x Width x Depth)	mm	590 x 400 x 256
Flue outlet diameter	mm	60/100

table-1, Technical specifications

Combustion Specifications	Unit	D2CND024-A0
Gas Category	-	II_{2H3P}
Gas Inlet Pressure (G20/G31)	mbar	20 - 37
Natural Gas (G20) Consumption (min./max.)	m³/h	0.31 - 2.48
LPG (G31) Consumption (min./max.)	m³/h	0.12 - 0.96
Combustion products mass flow rate (min./max.) (G20)	g/s	1.32 - 10.75
Combustion products mass flow rate (min./max.) (G31)	g/s	1.23 - 10.00
Combustion products temperature (min./max.) (G20)	°C	56 - 77
Combustion products temperature (min./max.) (G31)	°C	55 - 76
Maximum combustion products temp. at nominal heat input	°C	90
CO_2 Emission at nominal heat input (G20)	%	9.0 ± 0.8
CO_2 Emission at minimum heat input (G20)	%	9.0 ± 0.8
CO_2 Emission at nominal heat input (G31)	%	11.3 ± 1.0
CO_2 Emission at minimum heat input (G31)	%	11.3 ± 1.0
CO with 0% O_2 at nominal heat input (G20)	ppm	76
CO with 0% O_2 at nominal heat input (G31)	ppm	206
NOx Class	-	6

table-2, Combustion specifications

Opening the appliance

Warning
Only qualified competent persons are allowed to open the appliance.

Certain actions explained in this document, such as gas conversion, optional equipment connection, require that the front cover be opened.

Follow these instructions:

Loosen the screw which holds the right mounting clips.(1)

Dismantle the two mounting clips which hold the front cover.(2)

Remove the front cover forwards (3)

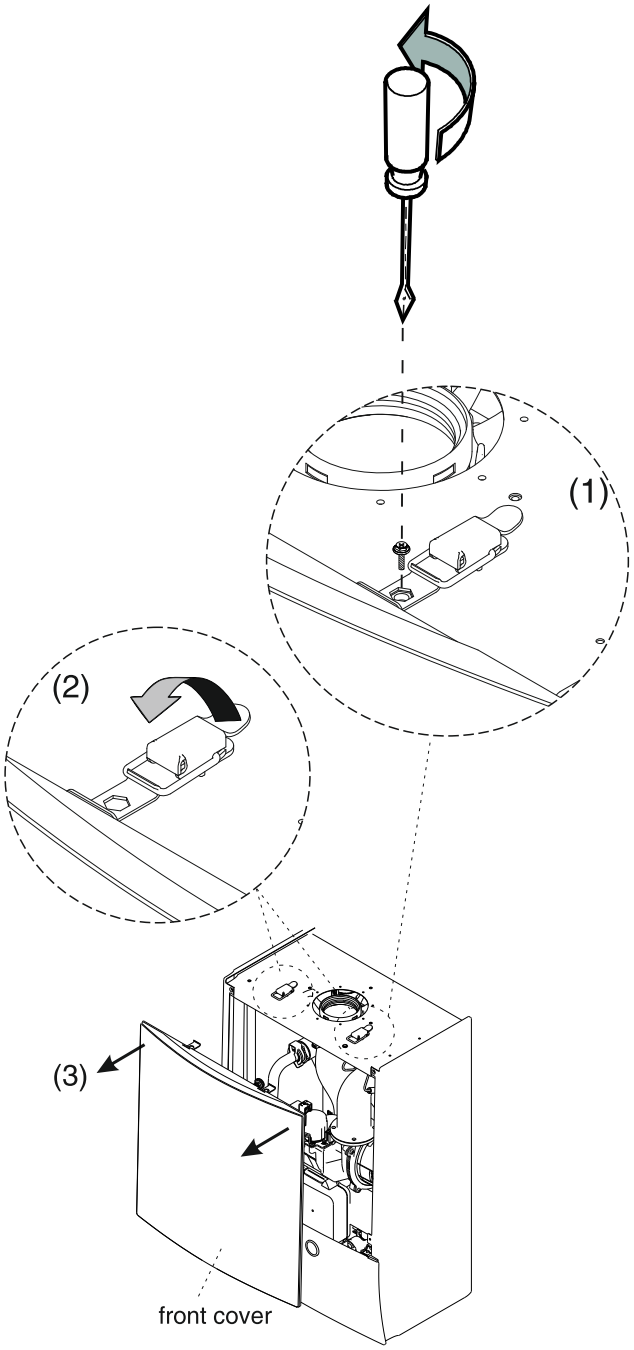


figure-7, Removing the front cover

Loosen the two screws of the control panel (4).

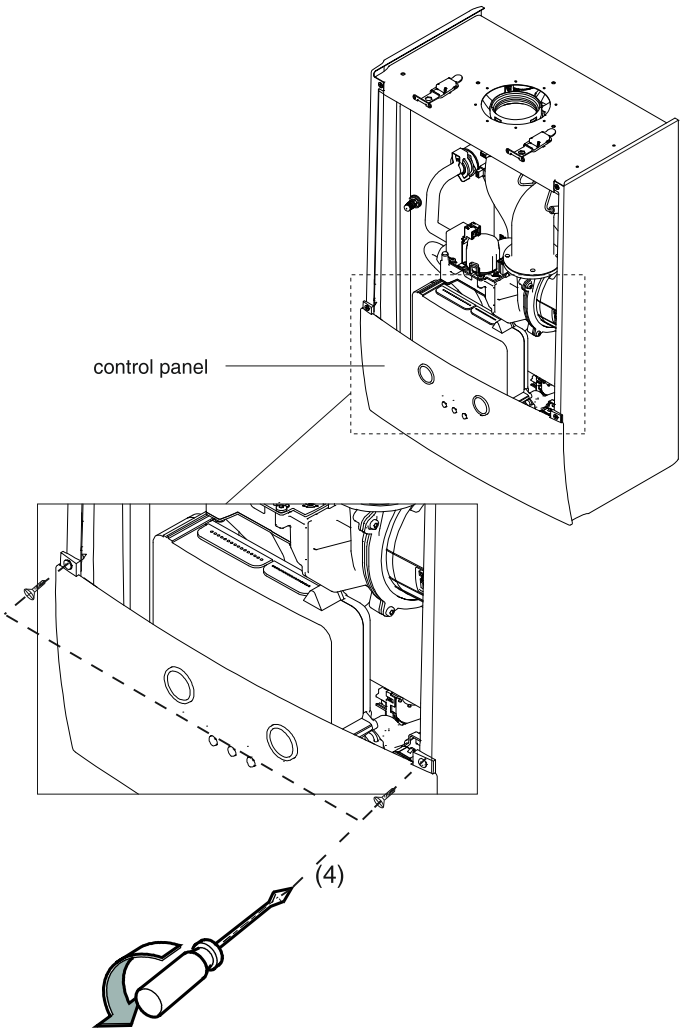


figure-8, Unscrewing the control panel

Shift the control panel downwards (5) and then pull it forwards (6).

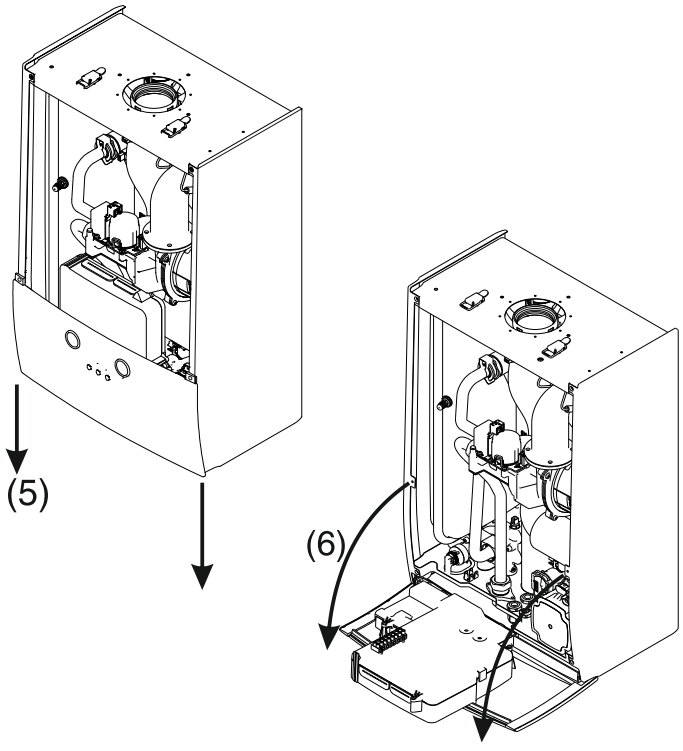


figure-9, Shifting and pulling the control panel

Installation site requirements

Warning
The boiler must be installed by a qualified installer in accordance with local and national regulations.

Warning
The following instructions shall be observed when determining the installation site;.

- ❒ Mount this appliance on vertical, flat walls only. Refer to figure-10.
- ❒ The boiler is not suitable for outdoor installation, unless it is protected by a housing which is designed and constructed for this purpose (e.g. a cupboard).
- ❒ Flammable fluids and materials must be stored at least 1 metre away from the boiler.
- ❒ The wall on which the appliance is mounted should be strong enough to carry appliances weight. Build a reinforcement if necessary.
- ❒ The following minimum clearances are required for servicing: 180 mm above the casing*, 200 mm below, and 10 mm at each side. 500 mm at the front clearance may be realized by opening a cupboard door. Refer to figure-11 and table-3.
- ❒ For easier use of control panel, it is recommended that boiler bottom is 1500 mm from the floor, for easier part replacement side clearances should be 50 mm where applicable. Refer to figure-11 and table-3.
- ❒ If the boiler is installed in a room or compartment, it does not require a dedicated ventilation for combustion air. If however installed in a room containing a bath or a shower, then particular reference is drawn to the current I.E.E. Wiring Regulations, local Building Regulations or any other local regulations currently in service.
- ❒ The intake air must not include chemicals which may cause corrosion, toxic gas formation and even risk of explosion.

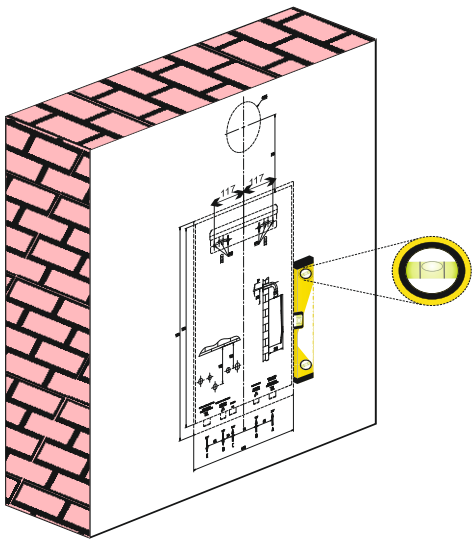


figure-10, Vertical, flat wall

Minimum installation clearances

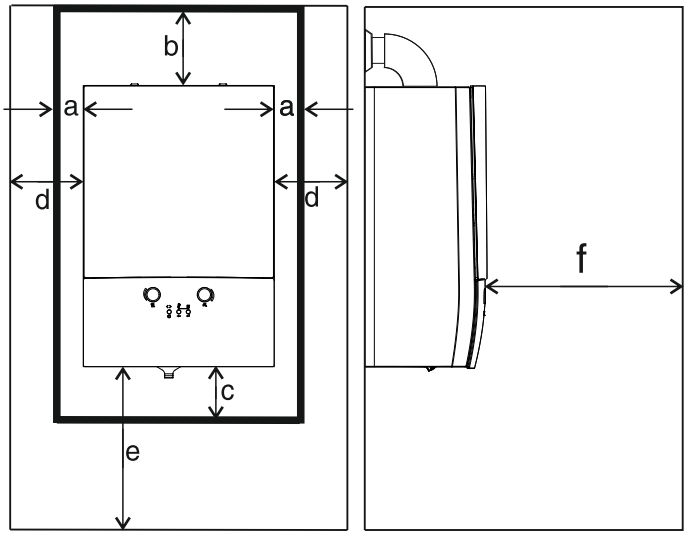


figure-11, Required/recommended clearances

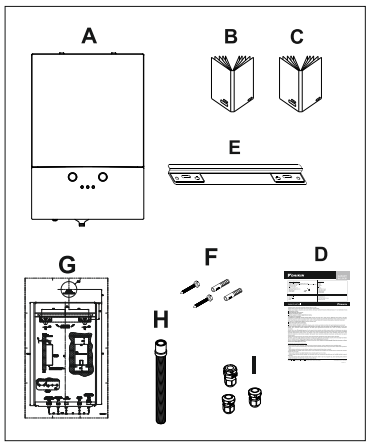
Minimum allowable clearances	
a, sides	10 mm
b, Above the casing*	180 mm
c, below	200 mm
f, in front	500 mm
Recommended clearances for easy servicing	
d, sides	50 mm
e, below (from the floor)	1500 mm

table-3, Required/recommended clearances

* **180 mm** is for the case that 60/100 90°C elbow is connected to the flue outlet of the boiler
b = 270 mm in case that 60/100 adapter with measurement point + 90° elbow are connected to the flue outlet of the boiler
b = 270 mm in case that 60/100 to 80/80 adapter + 90° elbow Ø80 are connected to the flue outlet of the boiler.
b = xxx mm in case that 60/100 to 80/125 adapter + 90° elbow 80/125 are connected to the flue outlet of the boiler.

Mounting the appliance

Unpack the appliance as shown on top of the packing case. The following items must be included in the package:



A- Combi Boiler
B- Operation Manual
C- Installation Manual
D- Warranty Certificate
E- Wall Mounting Bracket
F- Dowels and Screws
G- Installation Template
H- Condensate Hose
I- Cable glands 2xPG7+1xPG9

figure-12, Package content

Check the contents of the package. If any of them is damaged or missing, contact your dealer.

Caution
Store the remaining parts of the package (cardboard, plastic, etc.) in a place children can not reach. The manufacturer is not responsible for any accidents and/or damage that may occur this way.

The mounting template shows the position for the horizontal flue. If there is no hole in the wall for the flue piping, drill one. If there is already a hole in the wall for the flue piping, you can use this hole as a starting point to determine the position of the mounting bracket, according to the template.
Flue duct must incline 3 away from the appliance, to allow the condensate to drain back to the boiler.

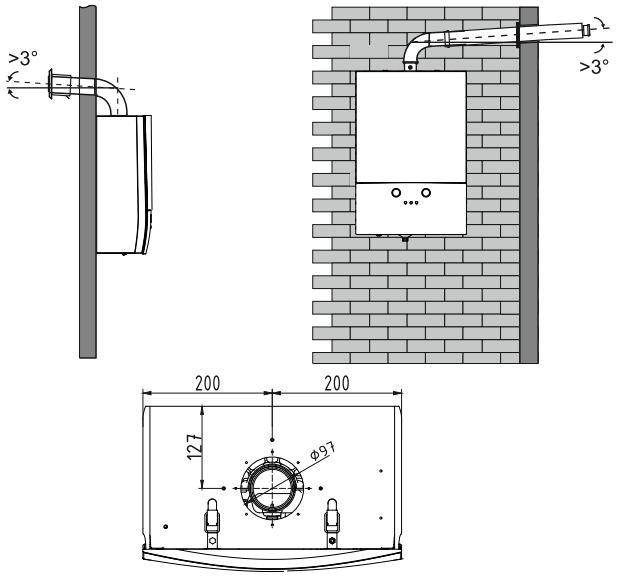


figure-13, Flue outlet position

Drill holes for the mounting bracket (Ø10mm). Fasten the mounting bracket to the wall according to mounting template.

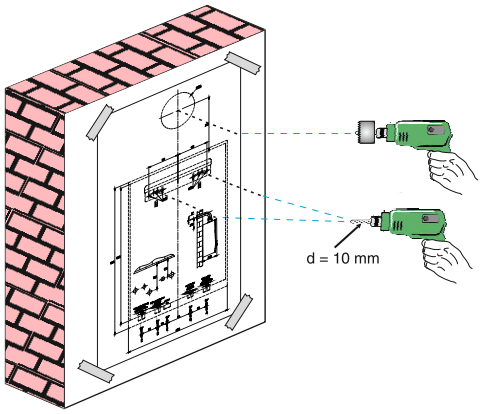


figure-14, Drilling mounting holes to the wall

Hang the appliance on the bracket. Make sure the appliance is latched to the bracket.

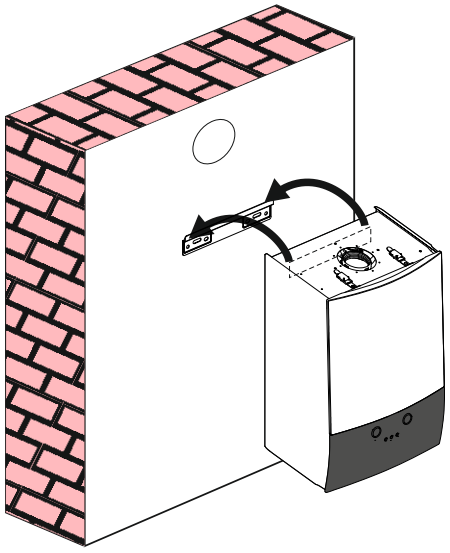


figure-15, Mounting the appliance to the bracket

Central heating system requirements

Expansion vessel sizing

The boiler is equipped with an 8 litre expansion vessel wich has initial charge pressure of 1 bar.
Sufficiency of the incorporated expansion vessel for the central heating cicuit that the boiler to be connected is dependant to system charge pressure and water temperature circulating in the circuit.

Determination of system water height and related system charge pressure are given in figure-16 and table-4.

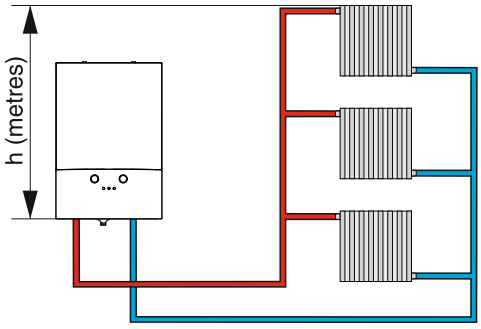


figure-16, System water height

h	System charge pressure
Up to 6 m	0.8 bar
7 m	0.9 bar
8 m	1.0 bar
9 m	1.1 bar
10 m	1.2 bar
11 m	1.3 bar
12 m	1.4 bar
13 m	1.5 bar

table-4, Charge pressure

According to the graph below (figure-17); There is no need to additional expansion vessel for the systems of which water volume is in the area below the operating temperature curve.

If water volume is above the curve, additional vessel must be installed on the return to the boiler.

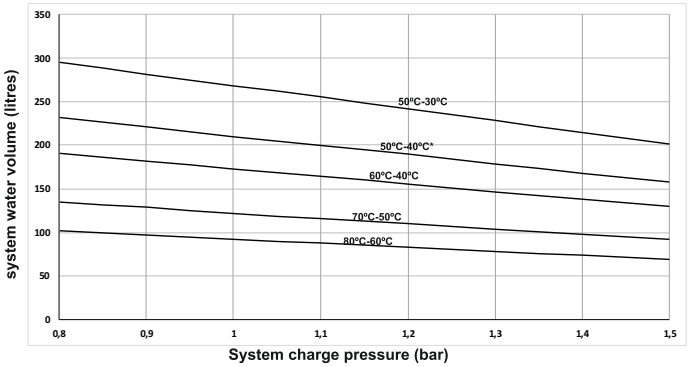


figure-17, Expansion vessel capacity curves

** 50°C - 40°C temperature regime is given for floor heating systems.*

If the water capacity of the heating system is larger, additional vessel must be installed on the return to the boiler.

Water treatment

Inappropriate central heating circuit water affects the functionality and the efficiency of the boiler negatively over time. To prevent this, water treatment is needed for inappropriate water.

To prevent from corrosion at the appliance and heat exchanger;
- ❒ The water pH should be between 6.5 and 8.5.
- ❒ The water hardness must be between fr °9 and 15 .

To minimise corrosion, it is important to use a corrosion inhibitor such as Sentinel or Fernox. For use of corrosion inhibitors, please refer to the instructions provided by their manufacturer.

Warning
Any damage to the boiler caused by the formation of corrosive water will not be covered by the warranty.

If antifreeze needed for system, please add appropriate antifreeze such as Sentinel or Fernox. For use of antifreeze, please refer to the instructions provided by their manufacturer.

Warning
Mixing additives with the central heating circuit water can result in material damage.

When using additives, follow the manufacturer's instructions. Daikin accepts no liability for the compatibility of any additive or its effectiveness in the rest of the heating system.

Floor heating

This boiler can be connected to a well designed underfloor heating system up to 15kW heating capacity without needing an additional pump.

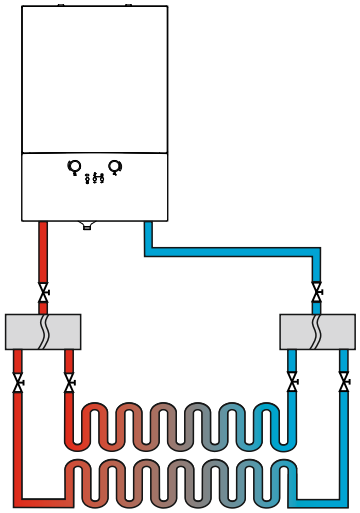


figure-18, Floor heating installation

When boiler is connected to floor heating installation, maximum central heating set temperature must be limited to 50° C and Pump operation temperature difference must be adjusted as 10K from the service settings menu. Refer to servicing instructions for this parameter changes.

Warning
Make sure parameter changes explained above are done to avoid discomfort of the user.

Residual pump lift

The residual pump lift graphic shows the amount of pump lift (mbar) that remains for the central heating circuit.

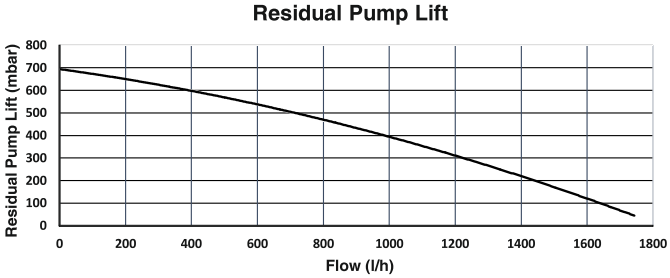


figure-19, Residual pump lift

Connections

Piping Connections

Below, find the piping connections of the appliance.

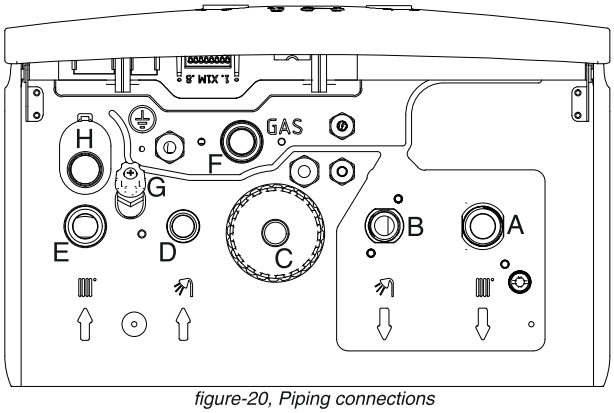


figure-20, Piping connections

A : Central Heating Inlet Connection, 3/4"
B : Domestic Cold Water Inlet Connection, 1/2"
C : Condensate Trap discharge
D : Domestic Hot Water Outlet Connection, 1/2"
E : Central Heating Outlet Connection, 3/4"
F : Gas Pipe Connection, 3/4"
G: Filling Valve
H: Safety valve discharge

To increase serviceability, install isolation valves and strainers just before the boiler piping connections as shown below;

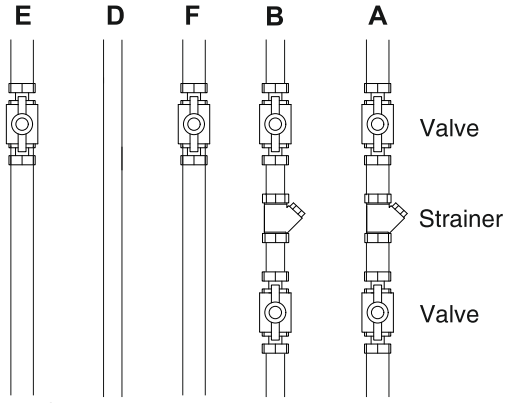


figure-21, Isolation valves and strainers

Ensure that necessary gaskets are placed.

Connecting the gas piping

This appliance is designed to be operated with natural gas and also with LPG. The preset gas type and the designated gas inlet pressure are indicated on the boiler's nameplate.

Warning
Only qualified persons are allowed to connect the gas piping. The gas inlet pipe diameter must be selected according to the applicable legislation, standards, and regulations.

Connect the gas piping according to applicable legislation of the country of destination and the regulations of the gas supply company.

Connect the gas supply piping without tension to the gas pipe connection. (”Connection F” on figure-20)

In case gas piping is adjacent to the wall and is to be connected to the gas pipe connection of the boiler with an elbow, enough space for taking out the condensate trap must be left. This can be done in two ways;

1. Elbow must be placed crosswise so it will not block the condensate trap when it is being taken out.
2. Elbow must be placed 120 mm below the gas piping connection of the boiler.

Connecting the water piping

When connecting the piping to the boiler, observe the following instructions:

Warning
Ignoring the rules explained below may result in serious damages in installation or boiler or cause discomfort of the user. The manufacturer is not responsible for any damage that may occur this way.

- The installation of the boiler should be in compliance with the applicable legislation, standards, and regulations.
- The materials used in the installation must be in compliance with the applicable legislation, standards, and regulations.
- Heating installation piping material must not allow oxygen diffusion according to DIN4726.
- The central heating/domestic hot water installation should be flushed and visually inspected**.** Wastes, dust, rubbers, and metal pieces generated during the installation and mounting of the boiler must be removed in order not to cause any damage.
- The central heating circuit must be able to withstand a pressure of at least 6 bar.
- Cross connection must be preferred in the radiators larger than 1.5 metre.
- The safety valve piping should be connected to a water outlet with an additional hose. This outlet should not be installed in places where there is risk of freezing, nor in the rain gutter, it should not end to dry floor without available drainage to avoid damaging of floor coating like parquet.
- The maximum pressure in the domestic hot water circuit is 10 bar. Inspect the piping taking this into consideration. If the water pressure of the main water supply is excessive, use an appropriate pressure reducer.
- As the condensing boilers generate condensate, the condensate trap outlet should be connected to a drain. Piping and elements of drain line must be acid-resistant material like plastics. Metals like steel or copper are not allowed.
- The system must be air-free to protect the boiler. There are two automatic air vents on the boiler, one at heat exchanger, the other on the pump. Ensure air is discharged completely at each water filling. Bleed the radiators if necessary
- If the boiler will be connected to an old central heating/domestic hot water installation, then first visually inspect the old installation. The installation must be in compliance with the capacity of the boiler and must not prevent the efficient running of it. Dirt in old system and piping must be flushed, and filters must be inspected..
- If old piping material does not have oxygen barrier, then it must be seperated from the boiler circuit via a plate heat exchanger and a second pump has to be installed for necessary circulation.
- If the pressure reading on the boiler user interface is dropping repeatedly, most probably there is a leakage in the installation. Inspect the installation to repair.

Connecting the electrical wiring

Danger
Before working on the electrical circuit always isolate the appliance from the power mains.

Warning
Only qualified persons are allowed to make electrical connections on the appliance. Failure to observe this warning will void the warranty. The manufacturer is not responsible for any damage that may occur this way.

Warning
Use a dedicated power circuit. Never use a power supply cable shared by another appliance.

The appliance runs on 230 VAC 50Hz power. A power cable is delivered with the package. The power cable must be connected to the power supply by an electrician and in accordance with the applicable legislation.

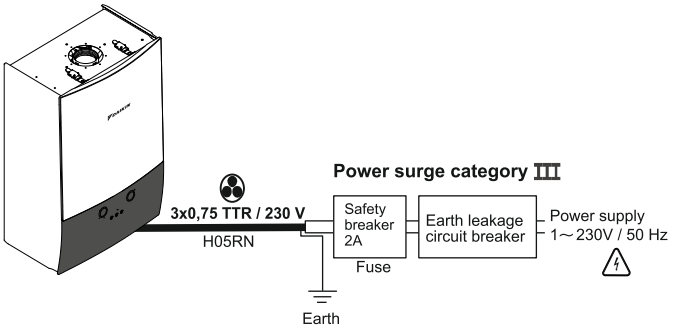


figure-22, Electrical connections

- Electrical work should be carried out in accordance with the installation manual and the national electrical wiring rules or code of practice.
- Insufficient capacity or incomplete electrical work may cause electrical shock or fire.
- A main switch or other means for disconnection, having a contact separation in all poles providing full disconnection under overvoltage category III, shall be installed in the fixed wiring.
- Be sure to establish an earth. Do not earth the unit to a utility pipe, lightning arrester, or telephone earth. **Incomplete earth may cause electrical shock and fire.**
- When the electrial connections are done, energy should not be on main power supply cable and main switch should be closed.
- During the electrical connections, make sure that the cables are well-fixed and are connected firmly and tightly.
- Power supply cable must be equivalent to **H05RN-F (2451EC57)** as minimum requirement.

Observe the point mentioned below when wiring to the power supply terminal board.

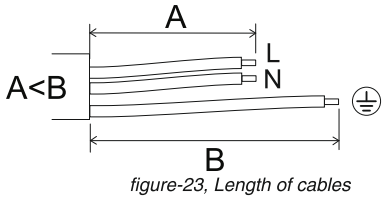


figure-23, Length of cables

Warning
Do not interchange the supply conductors L and the neutral conductor N.

Danger
Do not use gas and water pipes for earthing purposes and ensure that they have not been used for this purpose before. Failure to observe this relieves the manufacturer of any responsibility.

Combining the boiler with options

Optional equipments are connected to the connectors which are located on the outside of the switch box. Do not open the switch box to connect optional equipment.

Temperature Control Units	Connector	Connection
Opentherm room thermostat	X1M	3-4
Solar NTC sensor	X1M	1-2
Outdoor sensor	X1M	5-6
On-Off room thermostat	X2M	5-6
Solar stop contact	X2M	7-8
Ext. power output (230 VAC)	X2M	3-4

table-5, Control unit connections

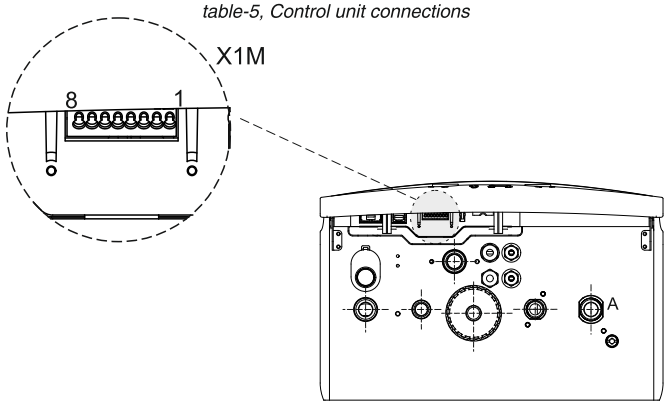


figure-24, X1M connector location

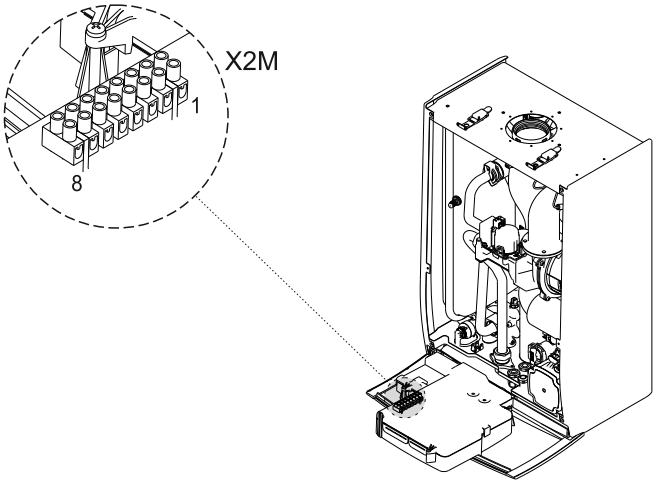


figure-25, X2M connector location

Wiring of the options that are to be connected to the X2M connector must pop out from the inside of the appliance via cable glands. Cable glands which are sent with the appliance must be assembled to the bottom sheet of the boiler in case connection of these optionals. Below, you can see the Cable glands placement.

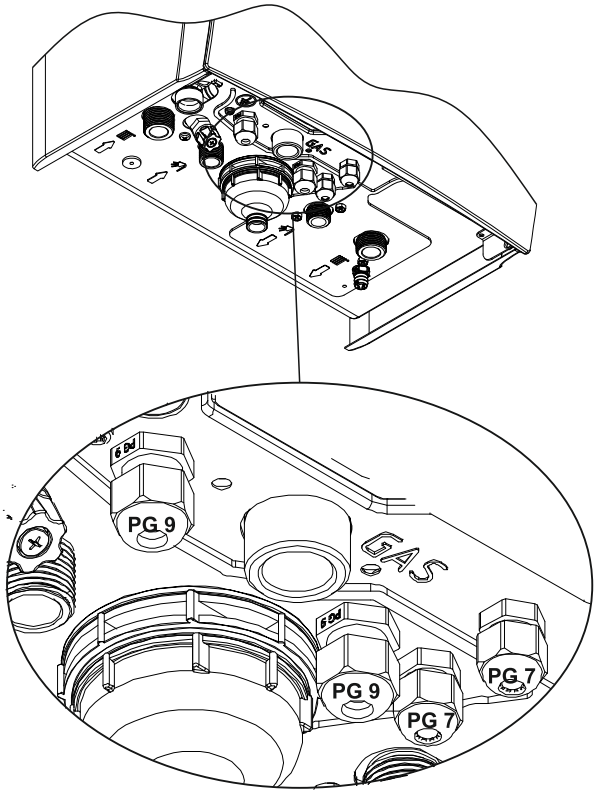
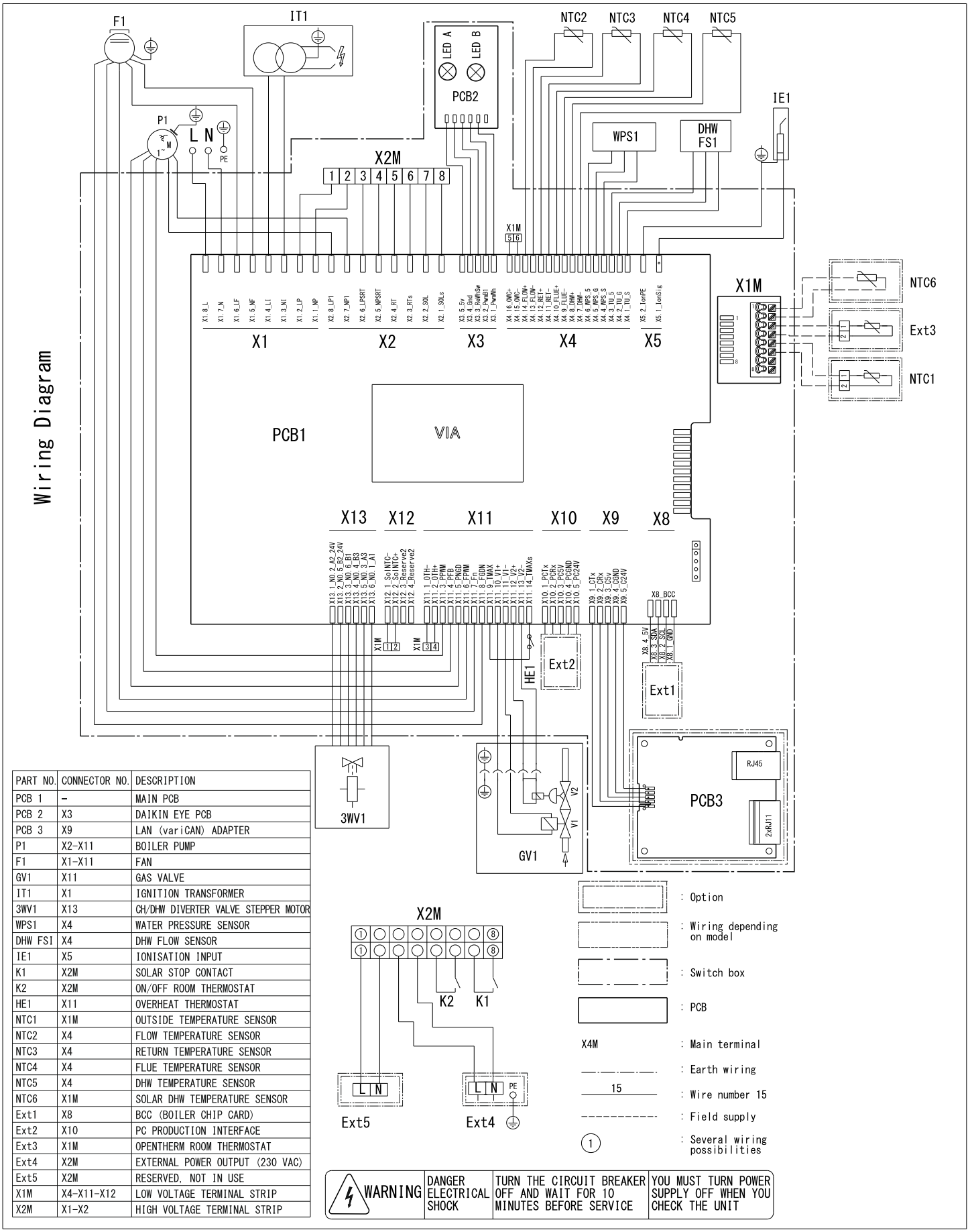


figure-26, Positions of cable glands when mounted

Holes on the bottom sheet that are reserved for cable glands are covered with insulation material. The insulation material must be bored if glands are to be used.

Note that appliance must be opened to mount cable glands. Refer to “Opening the appliance”, Page 7 in this manual to reach the inside of the boiler.

Wiring diagram



PART NO.	CONNECTOR NO.	DESCRIPTION
PCB 1	-	MAIN PCB
PCB 2	X3	DAIKIN EYE PCB
PCB 3	X9	LAN (variCAN) ADAPTER
P1	X2-X11	BOILER PUMP
F1	X1-X11	FAN
GV1	X11	GAS VALVE
IT1	X1	IGNITION TRANSFORMER
3WV1	X13	CH/DHW DIVERTER VALVE STEPPER MOTOR
WPS1	X4	WATER PRESSURE SENSOR
DHW FSI	X4	DHW FLOW SENSOR
IE1	X5	IONISATION INPUT
K1	X2M	SOLAR STOP CONTACT
K2	X2M	ON/OFF ROOM THERMOSTAT
HE1	X11	OVERHEAT THERMOSTAT
NTC1	X1M	OUTSIDE TEMPERATURE SENSOR
NTC2	X4	FLOW TEMPERATURE SENSOR
NTC3	X4	RETURN TEMPERATURE SENSOR
NTC4	X4	FLUE TEMPERATURE SENSOR
NTC5	X4	DHW TEMPERATURE SENSOR
NTC6	X1M	SOLAR DHW TEMPERATURE SENSOR
Ext1	X8	BCC (BOILER CHIP CARD)
Ext2	X10	PC PRODUCTION INTERFACE
Ext3	X1M	OPENTHERM ROOM THERMOSTAT
Ext4	X2M	EXTERNAL POWER OUTPUT (230 VAC)
Ext5	X2M	RESERVED, NOT IN USE
X1M	X4-X11-X12	LOW VOLTAGE TERMINAL STRIP
X2M	X1-X2	HIGH VOLTAGE TERMINAL STRIP

WARNING	DANGER ELECTRICAL SHOCK	TURN THE CIRCUIT BREAKER OFF AND WAIT FOR 10 MINUTES BEFORE SERVICE	YOU MUST TURN POWER SUPPLY OFF WHEN YOU CHECK THE UNIT

figure-27, Electrical wiring diagram

Connecting the condensate piping

Danger
In order to prevent escape of flue gases and so poisoning, the condensate trap must be mounted to its place before commissioning.

Condensate trap must be connected to a drain via an open connection.

Precautions that should be taken about condensate piping are;

- Horizontal pipe runs must fall a minimum of 45 mm/metre.

- External piping should be kept as short as possible or thermally insulated to prevent freezing, depending on the installation winter climate condition.

-Make sure that the condensate disposal system, the piping, and the fittings are made of acid resistant material like plastics.

Warning
The condensate trap outlet shall not be modified or blocked.

Caution
The condensate discharge piping diameter must be large enough so as not to restrain the condensate water flow.

Warning
If the discharge pipe is located outdoors, take measures against frost.

Condensate piping termination

Condensate piping can be connected to a termination in different ways shown below;

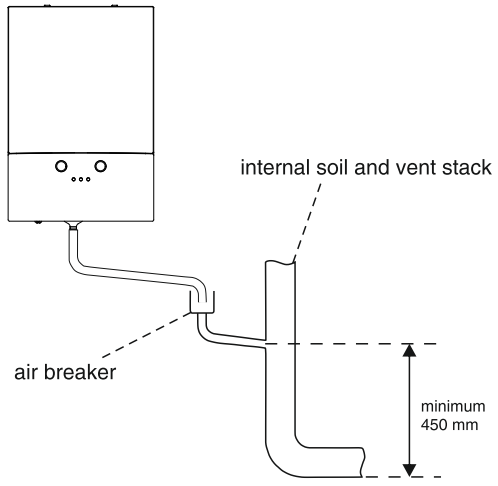


figure-28, Terminating into internal soil and vent stack

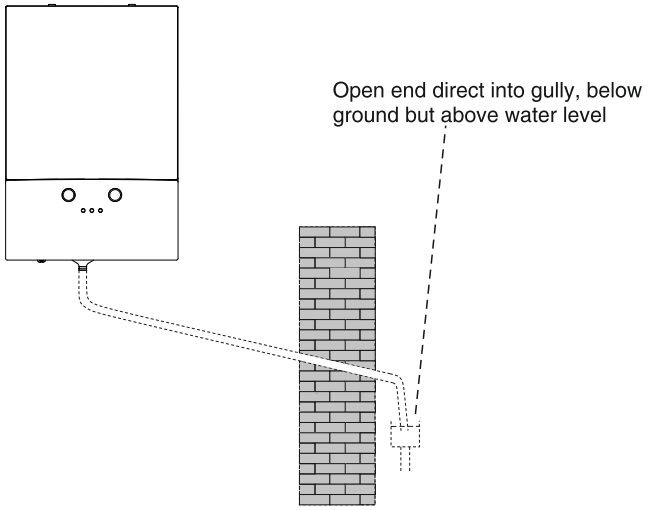


figure-29, Terminating into external waste system

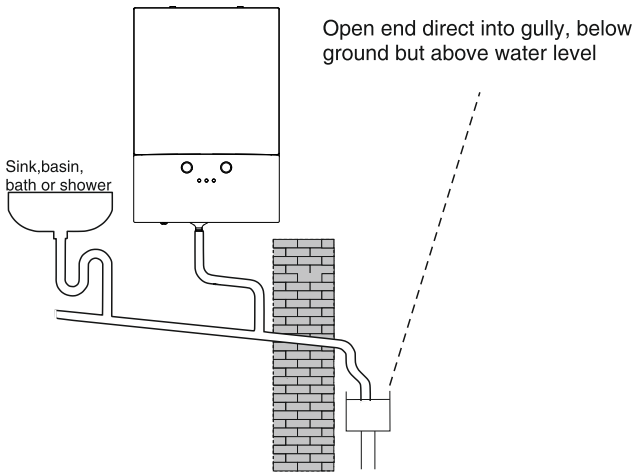


figure-30, Terminating into an external purpose made soakaway

Notice
Use of a condensate drain pump is necessary where termination of condensate line is below a soakway.

Connecting the boiler to the flue gas system

Danger
Risk of poisoning due to flue gas escaping within enclosed rooms that are inadequately ventilated.

Caution
Connected flue type must be identified on the nameplate.

Approved flue systems

Choose a flue type according to the installation site.

Approved flue types are written on the nameplate.

Flue Termination

The positions of the terminals in the roof or in the wall with respect to openings for ventilation must be in accordance with national regulations.

- The boiler must be installed so that the terminal is exposed to external air.
- Position of the terminal must allow the free passage of air across it at all times.
- Pluming may occur at the flue terminal. Positions where this could be a nuisance should be avoided.
- For single wall flue pipe; the minimum distance to a combustible material must be 25 mm, for air intake pipe and concentric systems; the distance to a combustible material is 0 (zero) mm.
- It is essential to ensure that products of combustion discharging from the terminal cannot re-enter the building or other buildings, through ventilators, windows, doors, other sources of natural air infiltration or forced ventilation.

Applicable flue systems

In this part, information about different flue systems are given. The mounting instructions for correct installation of the flue systems are included in the packaging of the flue parts as well as flue cutting instructions where needed.

Concentric flue systems

Type C13x

The boiler draws combustion air from outside via a concentric coaxial pipe fitted to the external wall and expels flue gas to the outside via the external wall.

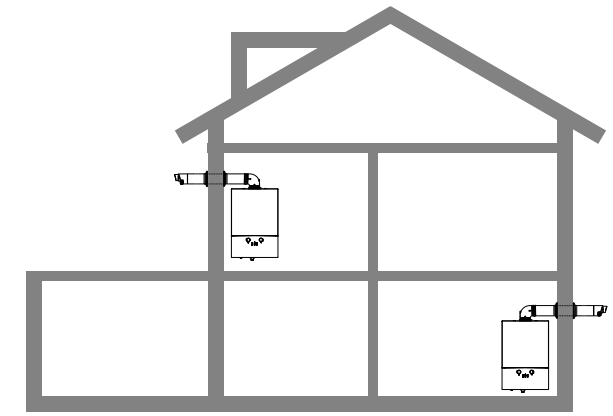


figure-31, Type C13x flue system

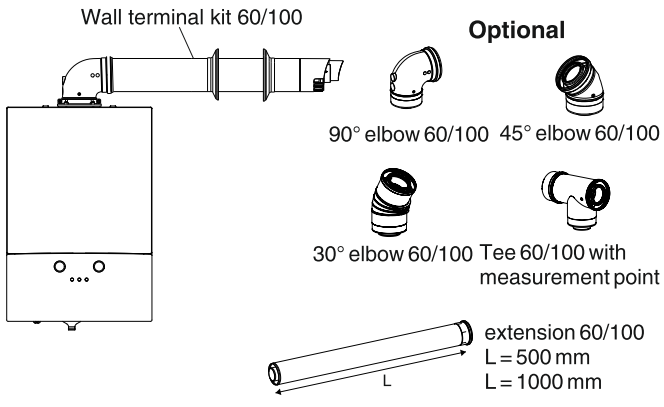


figure-32, Type C13x flue parts

Note: Optional kits are used where needed.

Allowable flue length for C13x	
Concentric 60/100 mm*	11.0 metres
Concentric 80/125 mm*	44.0 metres
Equivalent length of 90° elbow 60/100 mm	1.5 metres
Equivalent length of 45° elbow 60/100 mm	1.0 metre
Equivalent length of 30° elbow 60/100 mm	1.0 metre
Equivalent length of 90° elbow 80/125 mm	1.5 metres
Equivalent length of 45° elbow 80/125 mm	1.0 metre
Equivalent length of 30° elbow 80/125 mm	1.0 metre

table-6, Type C13x flue system max. allowable lengths

** including 1* 90° elbow

60/100 flue length can be increased up to 18.5 metres by adjusting the parameter C3 to 3. Refer to servicing instructions for this operation.

Subtract equivalent length value of bends from the allowable flue length value.

Danger

Flue duct must incline 3° away from the appliance, to allow the condensate to drain back to the boiler and out of the condensate drain.

Flue length determination

Flue duct length (L) is measured from lip of the elbow to end of the flue terminal.

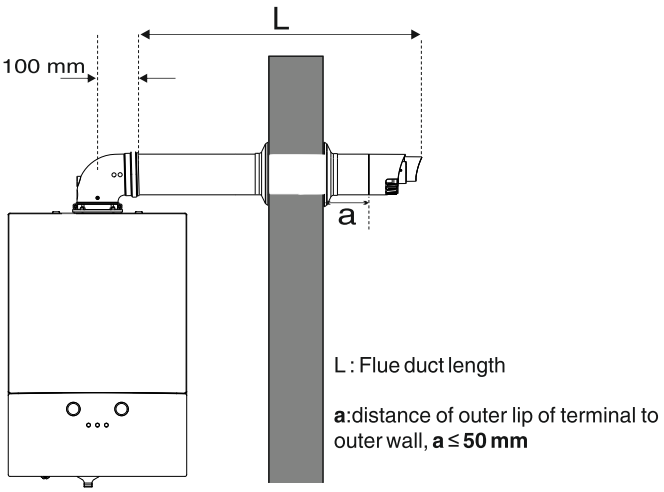


figure-33, Horizantal concentric flue length determination

Note: Horizontal flue duct is inserted 45 mm into elbows and extensions.

Information

Maximum permissible flue length is measured from centre line of appliance flue outlet to outside wall face.

Type C33x

The boiler draws combustion air from the outside and expels flue gas to the outside through a concentric coaxial pipe via the roof.

The terminal outlets from separate combustion and air supply circuits shall fit inside a square of 50 cm and the distance between the planes of the two orifices shall be less than 50 cm.

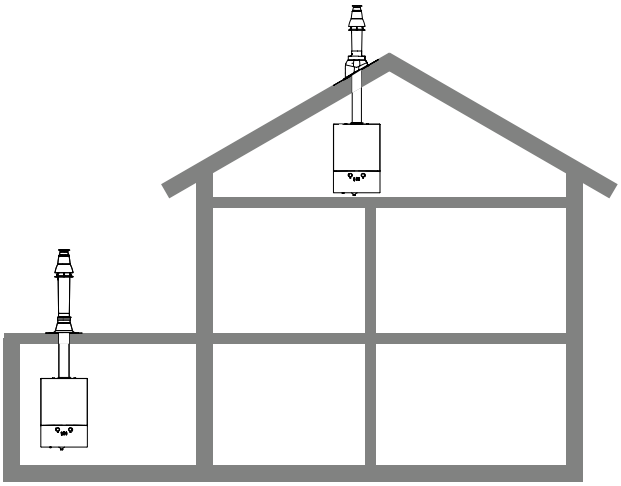


figure-34, Type C33x flue system

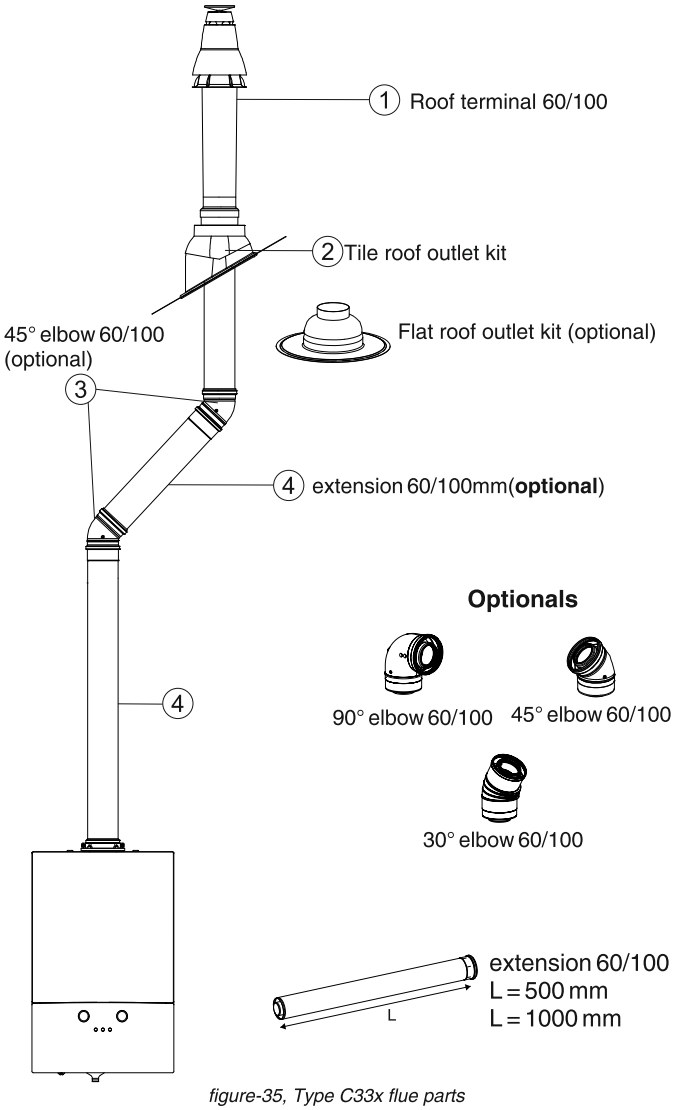


figure-35, Type C33x flue parts

Optional kits are used where needed.

Select one of the roof outlet kit, flat roof or tile roof, according to installation roof. Position the roof seal collar over the hole in the roof and insert the terminal through it.

Allowable flue length for C33x	
Concentric 60/100 mm	12.5 metres
Concentric 80/125 mm	42.8 metres
Equivalent length of 90° elbow 60/100 mm	1.5 metres
Equivalent length of 45° elbow 60/100 mm	1.0 metre
Equivalent length of 30° elbow 60/100 mm	1.0 metre
Equivalent length of 90° elbow 80/125 mm	1.5 metres
Equivalent length of 45° elbow 80/125 mm	1.0 metre
Equivalent length of 30° elbow 80/125 mm	1.0 metre

table-7, Type C33x flue system max. allowable lengths

60/100 Vertical flue length can be increased up to 20 metres by adjusting the parameter C3 to 3. Refer to servicing instructions for this operation.

Subtract equivalent length value of bends from the allowable flue length value.

80/125 mm Flue System

60/100 mm concentric flue ducts can be converted to 80/125 mm concentric ducts to increase maximum allowable flue duct length with using flue gas adapter 80/125. 80/125 ducts are applicable for C13x and C33x type flue systems.

80/125 adapter is coupled to the boiler flue outlet. Flue ducts are mounted to 80/125 adapter.

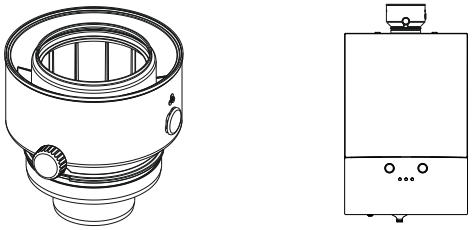


figure-36, 60/100 to 80/125 adapter and its mounting to the appliance

80/125 Flue parts to be used are shown below;

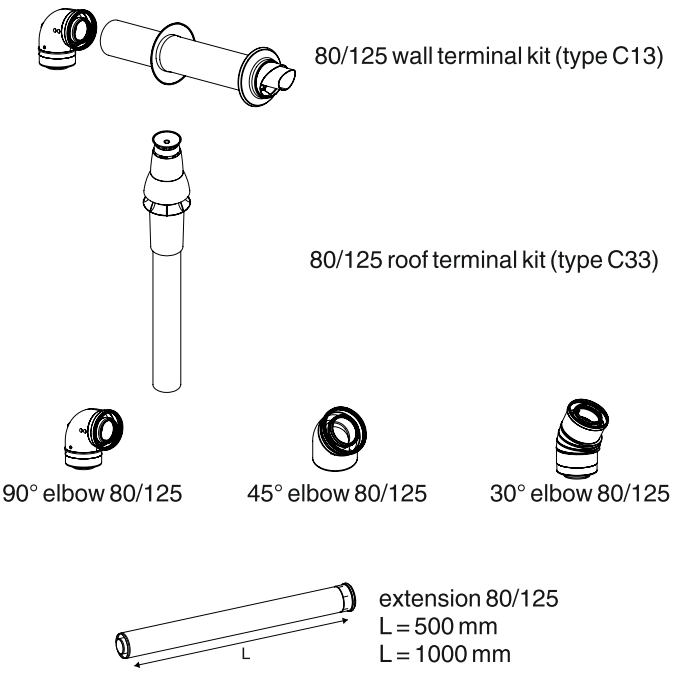


figure-37, 80/125 flue parts

Type C43x

Several heat sources draw combustion air from the outside through the annular gap of the room sealed balanced flue system and expel flue gas to the outside via the roof, through a moisture-resistant internal pipe.

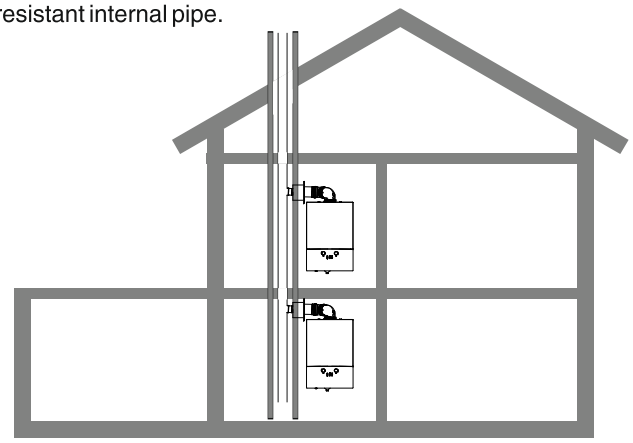


figure-38, Type C43x flue system

The multi served chimney is a system that is part of the building and has a seperate CE marking. The connection between the boiler and the shaft and, the connection between the boiler and the air intake system must be obtained via Daikin.

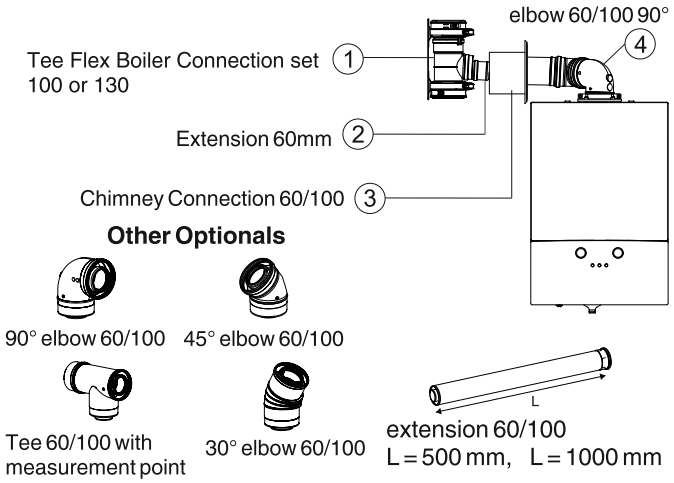


figure-39, Type C43x flue parts

Maximum allowable length of the flue duct up to common chimney is 3 metres + 1 60/100 90° elbow.

In C43x type appliances, condensate flow into the appliance is not allowed.

Type C63x

To install the boiler as a C63x option the following data must be used to determine the correct diameters and lengths of the flue system.

- Nominal combustion products temperature: 77°C
- Combustion products mass flow rate: 10.75 g/s
- Overheat combustion products temperature: 90°C
- Minimum combustion products temperature: 20°C
- Minimum combustion products mass flow rate: 1.32 g/s
- CO_2content at nominal heat input: 9.0 %
- Maximum allowable draught: 200 Pa
- Maximum allowable pressure difference between combustion air inlet and flue gas outlet (including wind pressures): 100 Pa
- The boiler must be connected to a system with the following characteristics: T120 P1 W
- Maximum allowable temperature of combustion air: 50°C
- Maximum allowable recirculation rate under wind conditions is 10%
- The terminals for the supply of combustion air and for the evacuation of combustion products shall not be installed on opposite walls of the building.
- Condensate flow into appliance is allowed.

Twin pipes flue systems

Type C53x

Air supply and flue gas discharge from / to atmosphere in areas of different pressure. The boiler draws combustion air from outside via a horizontal pipe fitted to the external wall and expels flue gas to the outside via the roof.

The terminals for the supply of combustion air and for the evacuation of combustion products shall not be installed on opposite walls of the building.

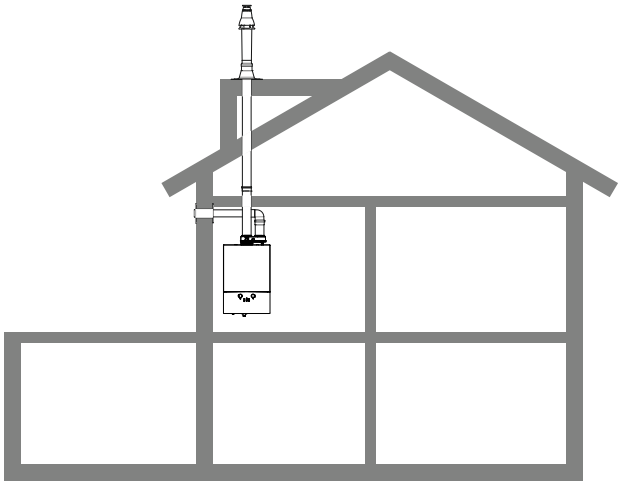


figure-40, Type C53x flue system

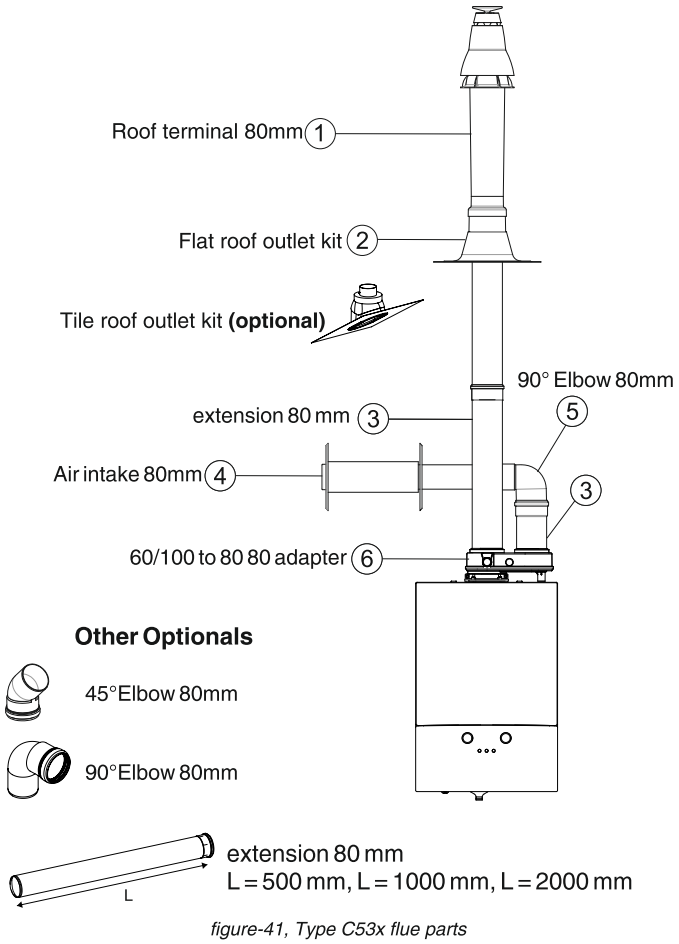


figure-41, Type C53x flue parts

Allowable flue length for C53x	
Air intake duct 80 mm	3.0 metres
Flue outlet duct 80 mm	125.0 metre
Equivalent length of 45° elbow 80 mm	1.0 metre
Equivalent length of 90° elbow 80 mm	2.0 metre

table-8, Type C53x flue system max. allowable lengths

Subtract equivalent length value of bends from the allowable flue length value.

Remark: The air intake length is 3 metres. In case of longer air intake use, flue outlet duct length must be shortened with the same length.

Type C83x

The boiler draws combustion air from outside via a separate supply pipe routed through the external wall, and expels flue gas to a shared flue system.

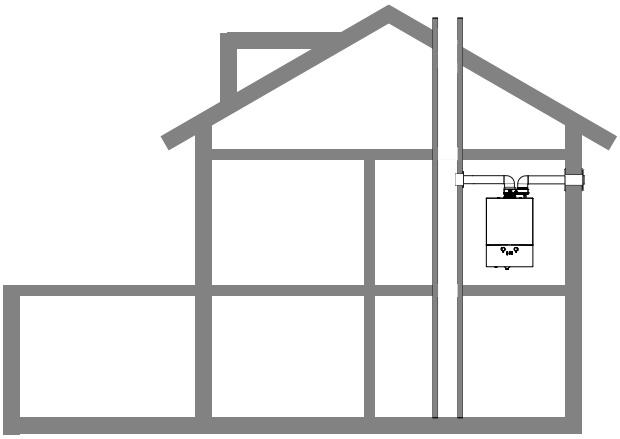
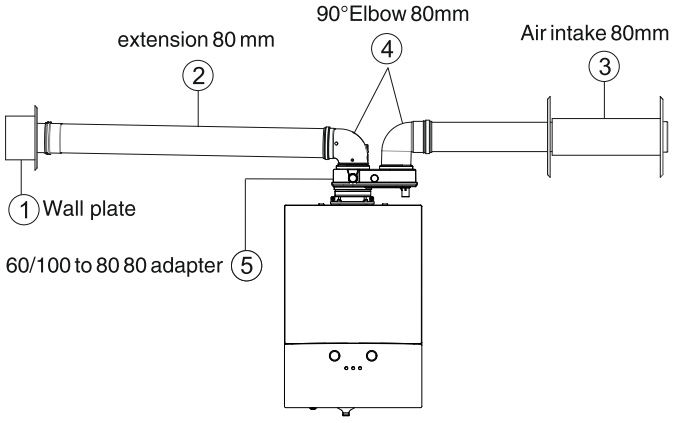


figure-42, Type C83x flue system

The multi served chimney is a system that is part of the building and has a seperate CE marking. The connection between the boiler and the shaft and, the connection between the boiler and the air intake system must be obtained via Daikin.

In C83x type appliances, condensate flow into the appliance is not allowed.



Other Optionals

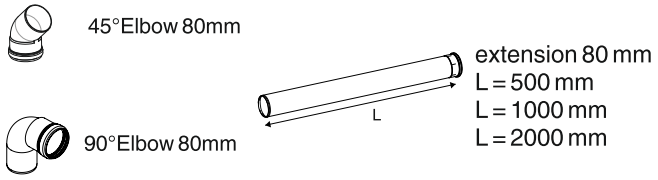


figure-43, Type C83x flue parts

Optional kits are used where needed.

Type C93x

The boiler draws combustion air from the outside through the annular gap in the shaft (chimney) and expels the flue gas via the flue pipe to above the roof.

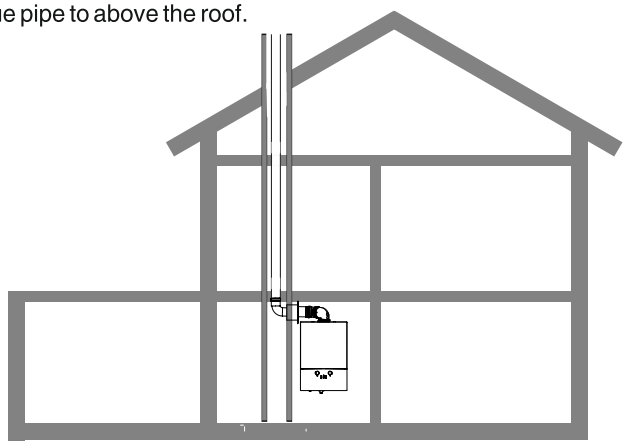
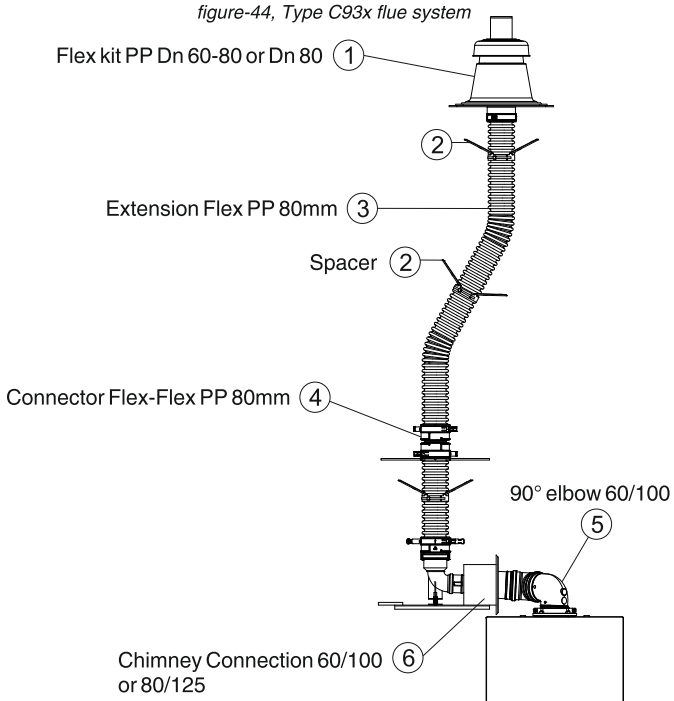


figure-44, Type C93x flue system



Other Optionals

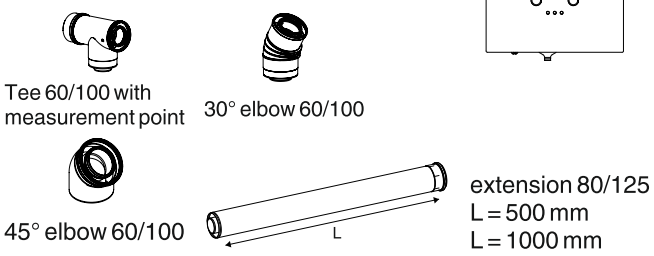


figure-45, Type C93x flue parts

Instead of 60/100, 80/125 flue ducts can be used at the outlet of the boiler. In that case, the parts below are used;

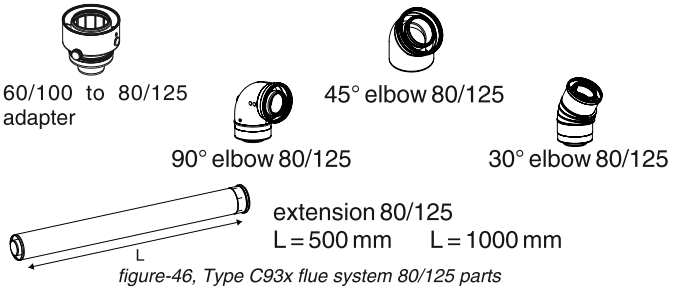


figure-46, Type C93x flue system 80/125 parts

Optional kits are used where needed.

Allowable flue length for C93x		
Chimney cross-section	PP 60mm rigid duct	PP 60mm flexible duct
Circular Ø 100 mm	7.2 m	2.9 m
Circular Ø 120 mm	9.3 m	4.5 m
Circular Ø 140 mm	9.9 m	4.8 m
Square 100 x 100 mm	8.8 m	5.1 m
Square 120 x 120 mm	9.7 m	6.1 m
Square 140 x 140 mm	10.0 m	6.2 m
Chimney cross-section	PP 80mm rigid duct	PP 80mm flexible duct
Circular Ø 120 mm	5.0 m	5.0 m
Circular Ø 140 mm	15.4 m	15.4 m
Circular Ø 160 mm	18.6 m	18.6 m
Square 120 x 120 mm	5.0 m	13.3 m
Square 140 x 140 mm	15.4 m	18.3 m
Square 160 x 160 mm	18.6 m	19.4 m

table-9, Type C93x flue system max. allowable lengths

Equivalent length of elbows	
45° elbow 60/100 mm	1.0 m
90° elbow 60/100 mm	1.5 m
45° elbow 80/125 mm	1.0 m
90° elbow 80/125 mm	1.5 m

table-10, Equivalent length of elbows

Subtract equivalent length value of bends from the allowable flue length value.

Open flue systems

Type B53

The boiler draws combustion air from the installation room and expels flue gas through the flue to above the roof (1).

The boiler draws combustion air from the installation room and routes flue gas through the moisture-resistant chimney to above the roof. (2)

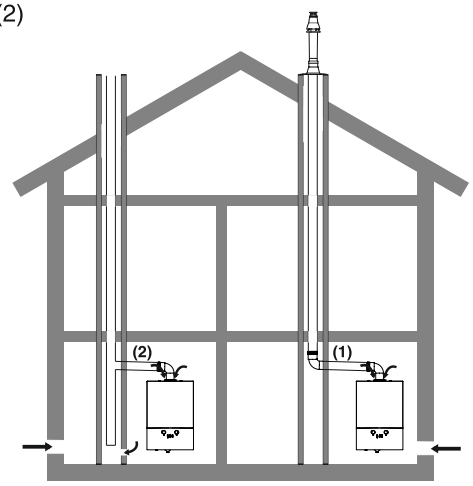


figure-47, Type B23 flue system

Allowable flue length for B53	
Flue duct 60 mm	24.0 m
Flue duct 80 mm	130.0 m
Equivalent length of 90° elbow 60 mm	1.5 m
Equivalent length of 45° elbow 60 mm	1.0 m
Equivalent length of 90° elbow 80 mm	2.0 m
Equivalent length of 45° elbow 80 mm	1.0 m

table-11, Type B53 flue system max. allowable lengths

Subtract equivalent length value of bends from the allowable flue length value.

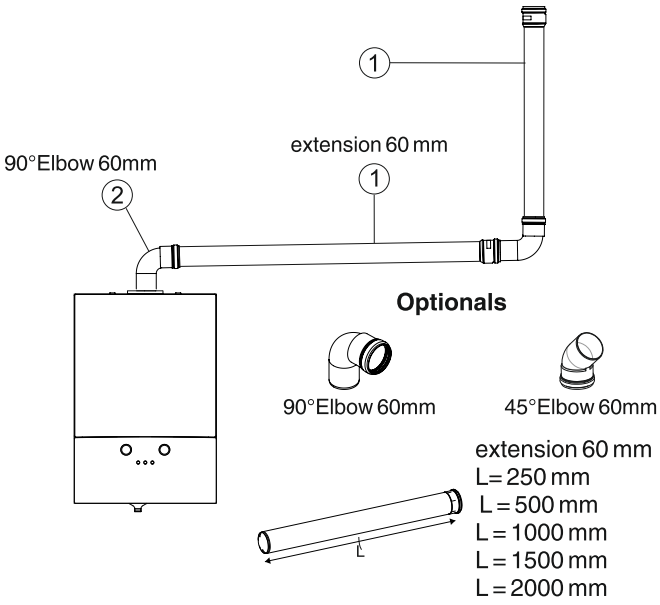


figure-48, Type B23 flue parts

Optional kits are used where needed.

Type B33

The multi served chimnet is a system that is a part of the building and has a seperate CE marking. The connection between the boiler and the shaft must be obtained via Daikin.

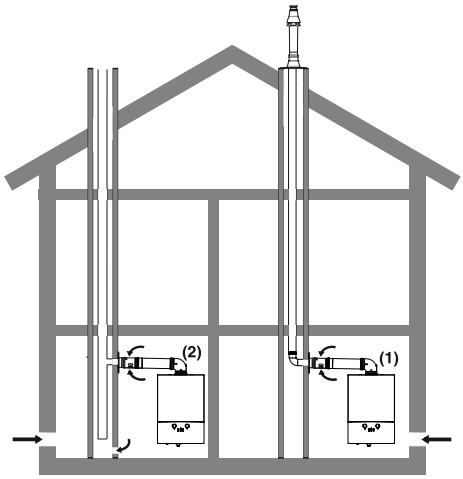


figure-49, Type B33 flue system

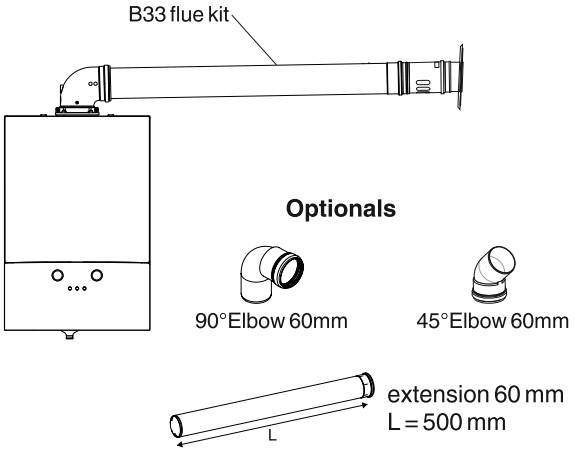


figure-50, Type B23 flue parts

Optional kits are used where needed.

Flue parts order codes

Required flue kits and/or additional parts can be ordered from Daikin with the order codes given in the table below;

Flue Part	Order Code
Wall terminal kit 60/100 (C13x)	EKFGP2978
Wall terminal kit 80/125 (C13x)	EKFGW6359
Roof terminal kit 60/100 (C33x)	EKFGP6867
Roof terminal kit 80/125 (C33x)	EKFGP6864
Tee 60/100 with measurement point	EKFGP4667
60/100 adapter with measurement point	DRMESA60100AA
90 elbow 60/100 with measurement point	DRMEEA60100AA
90 elbow 60/100	EKFGP4660
90 elbow 80/125	EKFGP4810
45 elbow 60/100	EKFGP4661
45 elbow 80/125	EKFGP4811
30 elbow 60/100	EKFGP4664
30 elbow 80/125	EKFGP4814
Extension duct 60/100 500mm - 1000mm	EKFGP4651 - EKFGP4652
Extension duct 80/125 500mm - 1000mm	EKFGP4801 - EKFGP4802
Tile roof outlet kit 60/100 18°/22°-23°/27°-25°/45°-43°/47°-48°/52°-53°/57°	EKFGS0518 - EKFGS0518 - EKFGP7910 - EKFGS0523 - EKFGS0524 - EKFGS0525
Tile roof outlet kit 80/125 18°/22°-23°/27°-25°/45°-43°/47°-48°/52°-53°/57°	EKFGT6300 - EKFGT6301 - EKFGP7909 - EKFGT6305 - EKFGT6306 - EKFGT6307
Flat roof outlet kit 60/100 - 80/125	EKFGP6940 - EKFGW5333
Wall bracket DN.100 - DN.125	EKFGP4631 - EKFGP4481
60/100 to 80/125 adapter	DRDECO80125AA
Tee flex boiler connection set 100mm - 130mm	EKFGP6368 - EKFGP6215
Flex + support elbow 60/100 - 60/130	EKFGP6354 - EKFGS0257
Chimney connection 60/100 - 80/125	EKFGP4678 - EKFGS4828
Roof terminal kit 80mm	????????????????
90 elbow 80mm	EKFGW4085
45 elbow 80mm	EKFGW4086
extension duct 80mm 500mm - 1000mm - 2000mm	EKFGW4001 - EKFGW4002 - EKFGW4004
60/100 to 80/80 adapter	DRDECOP8080AA
Air intake 80mm (C53 kit)	EKFGV1102
Air intake 80mm (C83 kit)	EKFGV1101
Flex kit PP DN.80 (C93 kit)	EKFGP2520
Flex kit PP DN.60/80 (C93 kit)	EKFGP1856
Extension flex PP 80mm 10m - 15m - 25m - 50m	EKFGP6340 - EKFGP6344 - EKFGP6341 - EKFGP6342
Connector flex - flex PP 80	EKFGP6324
Spacer PP 80 to 100 mm	EKFGP6333
90 elbow 60mm	????????????????
45 elbow 60mm	????????????????
Extension duct 60mm	????????????????
B33 flue kit	????????????????

table-12, flue parts order codes

Filling the System With Water

- ❒ After all system connections are performed with care, perform the following steps:
- ❒ Connect the appliance to the main power supply. Due to low pressure, error code “Err HJ-09" will appear on the user interface and The Daikin Eye light will be red.
- ❒ Open all radiator valves.
- ❒ Set all isolating valves to vertical (open) position.
- ❒ Measure system water height. (Refer to page 9)
- ❒ Slowly turn the filling valve until pressure reaches a value around 0.8 bar for sytem heights up to 6 metres. For longer system heights, refer to table-4 (Page 9) to determine filling pressure. Filling operation should be done slowly. When pressure exceeds 0.8 bar, error code will disappear and Daikin Eye light will turn to blue. Turn off the filling valve.
- ❒ System pressure value can be monitored from the user interface.
- ❒ Make sure the automatic air vent valves located on the pump and heat exchanger are opened. Vent the air from the installation with the manual air vent screws on the radiators. Make sure screws are tightened after venting.
- ❒ If after the purge the pressure decreases below 0.8 bar, refill the system with water until the pressure reaches 0.8 bar again.
- ❒ Check the central heating circuit - especially the couplings of the circuit - for leakage.
- ❒ Isolate the boiler from power mains.

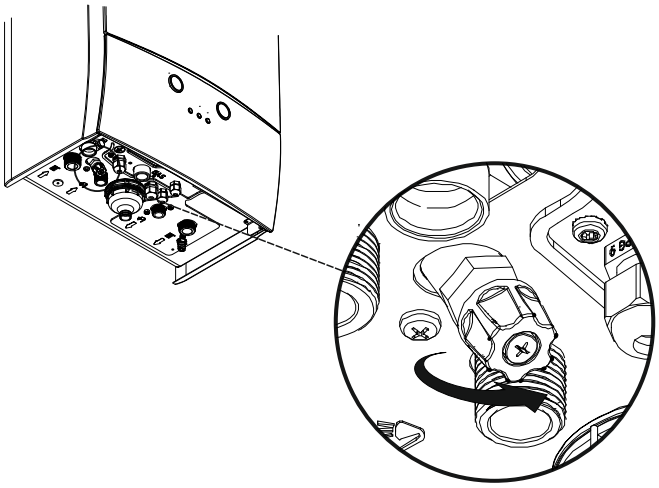


figure-51, Filling the system with filling valve

Converting for use with a different type of gas

Warning
Gas conversion operation can only be carried out by qualified competent persons.

Danger
Isolate the boiler from the power mains before gas conversion operation.

To convert the system to be used with a different type of gas:

Open the front cover of the appliance as described in this manual.

To set natural gas, adjust screw on the gas valve to “1" position (figure-52)

To set LPG, adjust the screw to “2" position (figure-52)

Mount the front cover, connect the appliance to the main power supply.

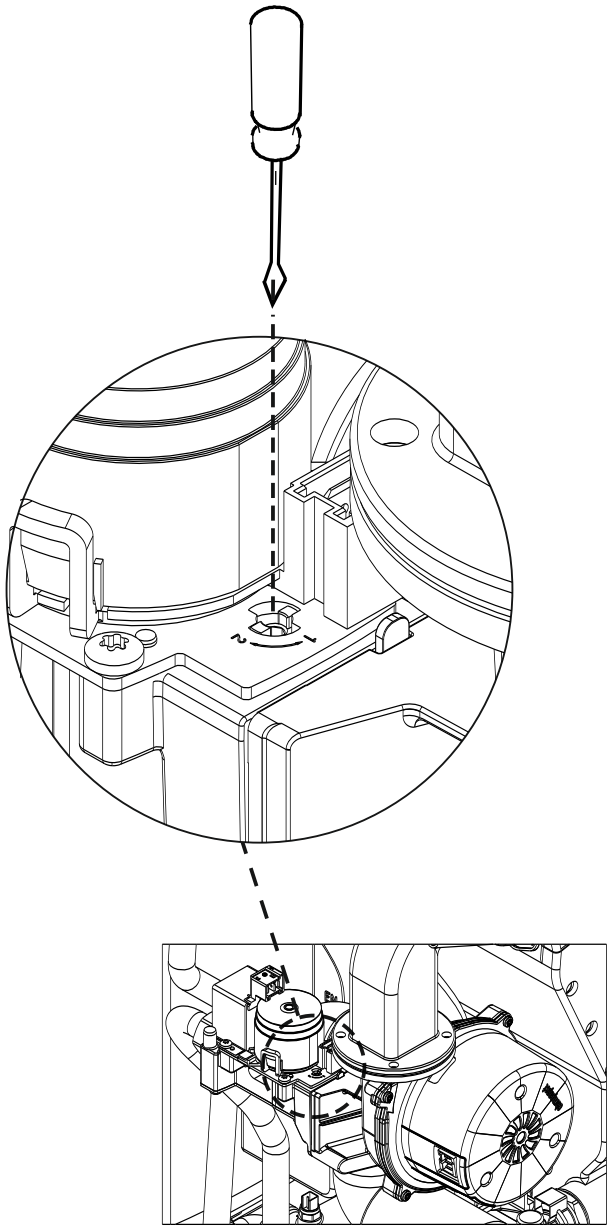


figure-52, Gas valve adjustment for gas conversion

Modifying Parameter Settings for gas conversion

Enter the Menu section from the user interface. Select service settings by using the left dial.

Press “Enter” and choose the password by using the right dial and press “Enter” again.

Choose “C” parameters via left dial and press “Enter”.

Choose “CE” and press enter. It will ask for password again. choose the password and press “Enter”.

Choose C0 and press “Enter”.

To convert to LPG, choose “1" with right dial and press “Enter”, To convert to Natural gas, choose “0" with right dial and press “Enter”

Leave menu screen and go back “Home Screen” by using “Back” button.

Information
Only qualified persons have access to servicing parameters. The passwords needed to access service parameters are written in servicing instructions.

COMMISSIONING THE APPLIANCE

Warning
Only qualified persons should conduct commissioning.

Caution
Preliminary electrical system checks such as earth continuity,polarity, resistance to earth and short circuit must be carried out with using a suitable testmeter by a competent person.

Filling the condensate trap

Take out the condensate trap as described in the operation manual (Operation Manual, Page 10). and fill the condensation tank (refer to Operation manual, figure-16, part e) with water and mount the trap to its place. Be sure that it is tightened.

Gas - air ratio adjustment

Since boiler has electronic gas adaptive feature, no any gas/air ratio adjustment is done by installer.

Initial Lighting

Legend - User interface

figure-53, User interface

- ❒ Make sure the system is filled with water and fully vented as described in this manual.
- ❒ Check that the central heating and domestic hot water isolating valves are open.
- ❒ Check that gas service valve is open.
- ❒ Connect the appliance to the main power supply. The user interface will be energized.

Central heating
Set mode to winter mode via “Mode” button on the user interface. (and icons are displayed on the screen.)

Set central heating set temperature to maximum value via left dial. If connected, make sure all external controls such as outdoor sensor and room thermostat are calling for heat.

The boiler control now go through its ignition sequence. The Daikin Eye will glow constantly in blue if flame is established. icon will blink when central heating is active.

Information
After **first** power ON, boiler does not increase its capacity above a preset capacity around fifteen minutes although there is demand.This is due to protective functions and gas - air ratio calibration function which are in process.

- ❒ Press “Cancel” and “Menu” buttons together 5 seconds to activate the sweeper mode. With sweeper mode, boiler can be operated at maximum and minimum capacity independent of heat demand.
- ❒ “tst - 100" caption will appear on the screen. This means boiler is operating at nominal capacity. Check nominal capacity operation.
- ❒ To quit sweeper mode, again press “Cancel” and “Menu” buttons together five seconds. Sweeper mode will be deactivated and boiler will return to normal operation mode. Sweeper mode also finishes automatically after 15 minutes.

Central heating capacity setting

The boiler’s central heating capacity can be adjusted form the control panel. If the heat loss of installation is much less than that of the boiler nominal capacity, it is recommended to reduce the boiler nominal capacity to the installation capacity. Refer to servicing instructions for this operation.

Domestic hot water

- ❒ Set domestic hot water set temperature to its maximum value via right dial.
- ❒ Open hot water taps fully and ensure that water flows freely from them.
- ❒ icon will blink when domestic water heating is active.
- ❒ Measure the DHW inlet temperature. (Cold water drawn off from taps)
- ❒ Check that DHW temperature rise is around 34 C.

HANDING OVER

- ❒ After completing the installation and commissioning of the system the installer should hand over to the householder.
- ❒ Hand the Operation Manual to the householder and inform them about his/her responsibilities under the relevant national regulations.
- ❒ Explain and demonstrate the lighting and shutting down procedures.
- ❒ Explain the function and the use of the boiler heating and domestic hot water controls.
- ❒ Explain and demonstrate the function of temperature controls, radiator valves etc., for the economic use of the system.
- ❒ Explain the function of the boiler error mode. Emphasise that if an error is indicated refer to “Error Codes” in the Operation Manual.
- ❒ Inform the user about frostprotection function and advise never to cut off the electric supply to the boiler.
- ❒ Emphasise that a comprehensive service should be carried out annually, especially before winter.
- ❒ Inform the householder of the guarantee and the requirement to register it to receive the full benefit of the warranty.

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