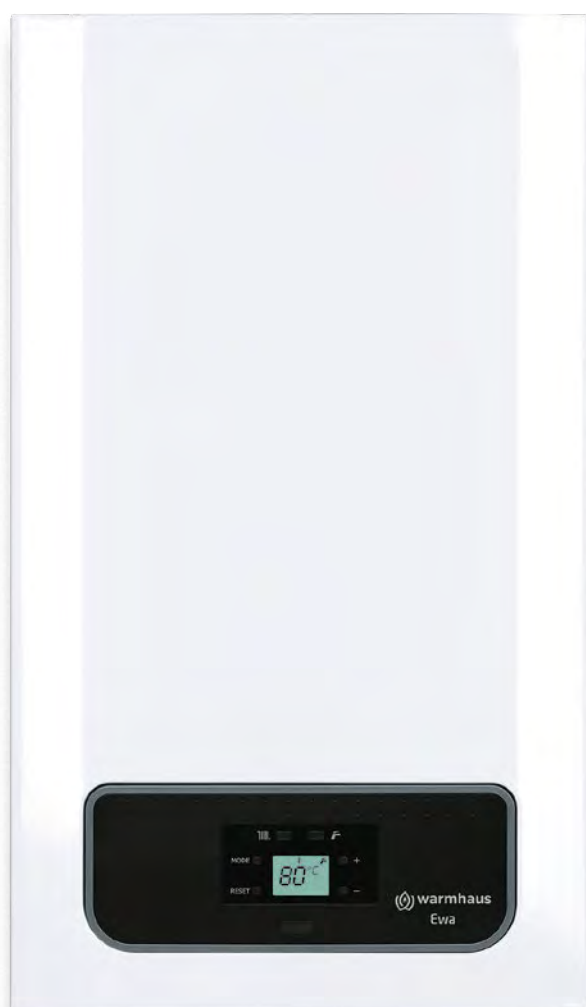


EWA 20

EWA 24

**CONDENSING COMBI BOILER
INSTALLATION MANUAL**

EWA 20 EWA 24



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BOILER GAS CATEGORIES & DESTINATIONS

Designation: Used gas types & Countries						
Object Manufacturer				Type-model / Technical data		Mark (s) of conformity
Boiler gas categories & destinations				Warmhaus all wall-hung boilers		granted
Gas categories for Warmhaus boilers has been applied on CE certification on SZU Test / BRNO given below; - the appliance category(ies) in relation to the direct countries of destination has been specified EN 15502-1; GAR Certificate E-30-00300-18 product ID Nr. CE-1015CT0615 - the country(-ies) of destination, in accordance with EN ISO 3166-1; - the gas supply pressure in millibars, if several normal pressures can be used for the same gas group. They are indicated by their numerical value and the unit "mbar"						
Document for conformity approved by SZU test	Appliance Categories	Gas Type	Gas Inlet Supply Pressures	Used Gas	EWA 20 EWA 24	Countries of Destination**
YES	I 2H	Natural Gas	20 mbar	G20	Available	AT, BG, CH, CZ, DK, EE, ES, FI, GB, GR, HR, IE, IT, LT, LU, LV, NO, PT, RO, SE, SI, SK, TR
YES	I 2H	Natural Gas	25 mbar	G20	Available	HU
YES	I 2E	Natural Gas	20 mbar	G20	Available	DE, LU, PL, RO
YES	I 2E+	Natural Gas	20 mbar	G20	Available	BE, FR
YES	I 2E(S)	Natural Gas	20 mbar	G20	Available	BE
YES	I 2ELL	Natural Gas	20 mbar	G20	Available	DE
YES	II 2H3P	Natural Gas	20 mbar	G20	Available	CH, CZ, ES, GB, GR, HR, IE, IT, LT, PT, RO, SI, SK
YES	II 2H3+	Natural Gas	20 mbar	G20	Available	CH, CY, CZ, ES, GB, GR, IE, IT, LT, PT, SI, SK, TR
YES	II 2E+3+	Natural Gas	20 mbar 25 mbar	G20	Available	BE, FR
YES	II 2E+3P	Natural Gas	20 mbar 25 mbar	G20	Available	BE, FR
YES	II 2H3B/P	Natural Gas	20 mbar	G20	Available	AT, CH, CY, CZ, DK, EE, FI, GR, IT, LT, NO, RO, SE, SI, SK
YES	II 2E3B/P	Natural Gas	20 mbar	G20	Available	DE
YES	II 2ELL3B/P	Natural Gas	20 mbar	G20	Available	DE
YES	I 2L	Natural Gas	25 mbar	G25	Available	NL
YES	I 2E+	Natural Gas	25 mbar	G25	Available	BE, FR
YES	I 2ELL	Natural Gas	20 mbar	G25	Available	DE
YES	II 2L3P	Natural Gas	25 mbar	G25	Available	NL
YES	II 2L3B/P	Natural Gas	25 mbar	G25	Available	NL
YES	II 2ELL3B/P	Natural Gas	20 mbar	G25	Available	DE
YES	I 3+	Buthane Gas	28-30 mbar 37 mbar	G30	Available	BE, CH, CY, CZ, ES, FR, GB, GR, IE, IT, LT, PT, SI, SK
YES	I 3B/P	Buthane Gas	30 mbar	G30	Available	BE, CY, CZ, DK, EE, FI, GB, GR, HU, HR, IE, IT, NL, NO, RO, SE, SI, SK, TR
YES	I 3B/P	Buthane Gas	50 mbar	G30	Available	AT, CH, DE, FR, SK
YES	II 2H3+	Buthane Gas	28-30 mbar 37 mbar	G30	Available	CH, CY, CZ, ES, GB, GR, IE, IT, LT, PT, SI, SK, TR
YES	II 2E+3+	Buthane Gas	28-30 mbar 37 mbar	G30	Available	BE, FR
YES	II 2H3B/P	Buthane Gas	30 mbar	G30	Available	CY, CZ, DK, EE, FI, GR, IT, LT, NO, RO, SE, SI, SK
YES	II 2H3B/P	Buthane Gas	50 mbar	G30	Available	AT, CH, SK
YES	II 2E3B/P	Buthane Gas	50 mbar	G30	Available	DE
YES	II 2L3B/P	Buthane Gas	30 mbar	G30	Available	NL
YES	II 2ELL3B/P	Buthane Gas	50 mbar	G30	Available	DE
YES	I 3P	Propane LPG	37 mbar	G31	Available	BE, CH, CZ, ES, FR, GB, GR, HR, IE, IT, LT, NL, PL, PT, SI, SK, TR
YES	II 2H3P	Propane LPG	37 mbar	G31	Available	CH, CZ, ES, GB, GR, HR, IE, IT, LT, PT, RO, SI, SK
YES	II 2L3P	Propane LPG	37 mbar	G31	Available	NL
YES	II 2E+3P	Propane LPG	37 mbar	G31	Available	BE, FR

** EN 437+A1:2009, Codes for the representation of gases and names of countries and their subdivisions; Part 1: Country codes (ISO 3166-1:2006)

1. INSTALLATION PERSONNEL SECTION

1.1. CONTENTS OF PACKING BOX

Warmhaus is sold as two boxes with combi and flue set. Combi box contains below listed materials and small box contains exhaust gas flue pipes.

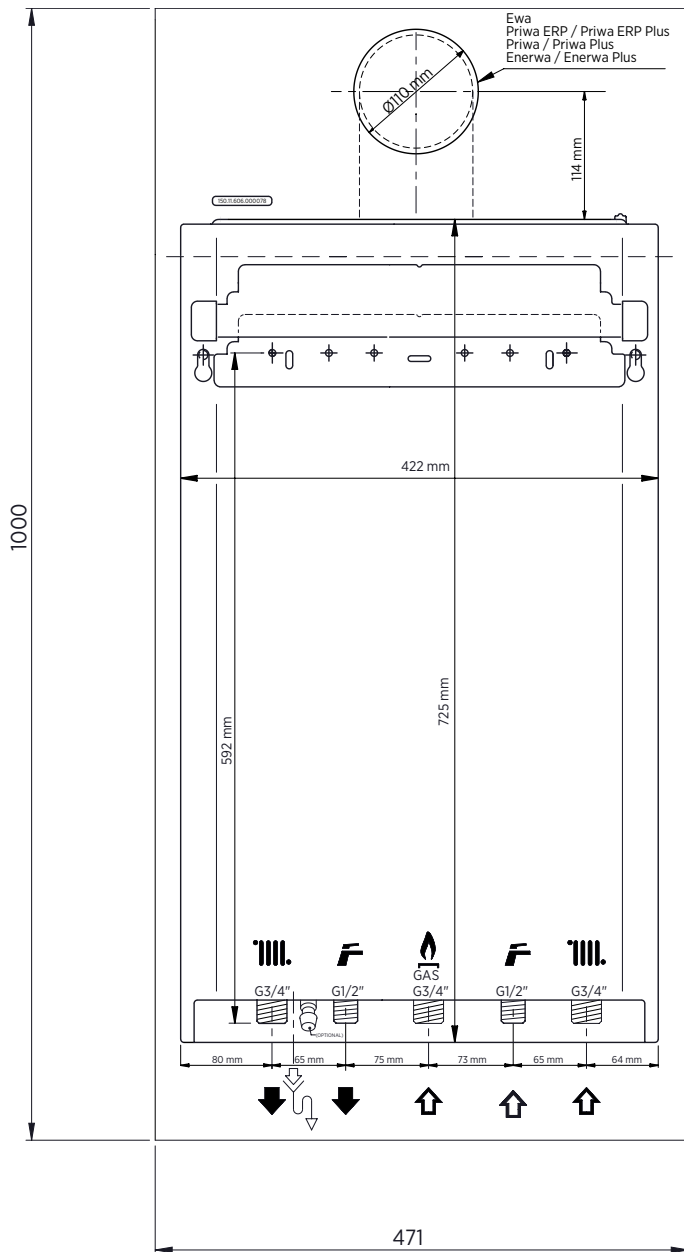


Figure 1 Installation scheme

I. Installation Scheme (Figure 1)

II. User's Guide (Figure 2)

III. Connection Accessories (Figure 3)

- a. 1 throttle screw (installed at flue output).
- b. 2 hanger screws
- c. 2 Dowels

IV. Hanger Plate (Figure 4)

V. Exhaust Gas Flue Set (Figure 5)



Figure 2 User's Guide



Figure 3 Connection accessories



Figure 4 Hanger Plate

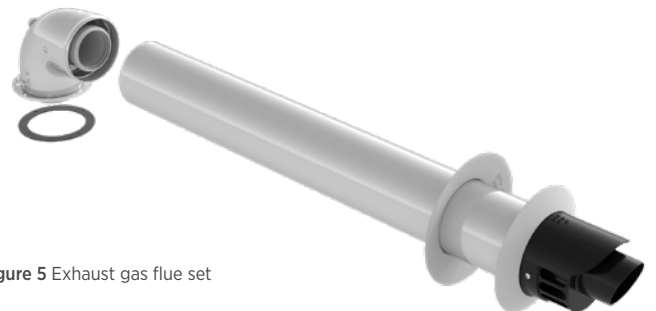



Figure 5 Exhaust gas flue set

 Do not leave packing materials (plastic, nylon, bags, etc.) at places to be reached by children for preventing any dangers for health.

1.2. COMBI INSTALLATION RULES

1.2.1. General Rules for Installation Places of Combi Boilers

No restriction is available for places where Hermetic (C typ) combi is installed (devices may be installed regardless the room volume and ventilation type). Also, they may be installed at partially protected areas such as balcony, terrace provided that being placed in protective cabinets and taking required precautions against frost of installation water.

Combi should be soundly installed to building wall. Flexible connection piece should be used between the combi and gas line. Flex lengths to be used in A, B and C type devices should not exceed dimensions allowed by local gas authorities. Flue outputs of hermetic combis must be connected to places open to exterior and having air circulation. Installation (positions of pipe output opening based on various forms, vertical, horizontal minimum distances, cross section areas of channels if given to channels, etc.) must be carried out according to regulation standards, current legislation and in compliance with local technical regulations and the required technical procedures.

1.2.2. Places Not Suitable for Installing Hermetical Combi Boilers

Stairways of Buildings,

- Corridors available for general use, ventilation ways and shafts, lofts, attics, emergency exit doors, cellars, hall and similar places creating common use areas,
- Yards between buildings,
- Narrow cornice distances,
- Over flue walls,
- Enclosed balconies,
- Open balconies (except being located in the cabinet and permission of the device company),
- Below protruding structure parts preventing exhaust gas output,
- Places those may be directly subjected to wind resistance,
- It is forbidden to install Hermetic combi (C type) to openings providing clean air to other units!

1.2.3. Wall Installation of Combi and Selecting the Installation Place

- It should be controlled and ensured that the wall installation of the combi is sound and reliable.
- The hanger plate given as standard with the combi should be installed according to the technique to full or semi-full brick wall according to

installation scheme and with connection screws and not to be used for other purposes.

- In case of using different materials for installation, combi shall be out of the warranty scope.
- If the wall of installation is not a brick wall, initially the reliability of support system should be controlled.
- Combi should be installed on a wall resistant to fire.
- NOTICE: Combustible and corrosive materials:
- Chemically aggressive substances can corrode the appliance and invalidate any guarantee.
- Do not store or use any combustible materials (paper, thinners, paints, propellants, cleaning agents etc.) Keep the distance minimum 50 mm.
- Inside the cupboard containing the appliance or within the vicinity of the appliance.
- 1,8 - 2,2 m height is recommended for installation of the combi hanger plate.
- For places with limited installation place, combi should be installed at minimum 30 cm height from ground and by leaving at least 5 cm distances from both sides in order to allow easy intervention of the service technician.
- Combi installation must not performed in environments containing explosive, flammable substances and acid fumes
- Installation cannot be made at near or on ovens, radiators or heater devices.
- Hermetic combis can be installed in furnitures but at least 5 cm each should be left at both sides.
- If to be installed on the kitchen table or the set, at least 30 cm distance should be left under the combi.
- It is recommended to connect the output to drain line with a transparent hose against the possibility of water leakage from Safety Valve of combi during installation. If this is not possible; do not place electronic devices, delicate, corrodible devices, components and tools under the combi.
- Do not place/use any furnitures below the combi due to above mentioned reasons.



Make sure that there are no liquids or inflammable materials in the immediate vicinity of the boiler.

It is necessary to leave a specific distance 1.0 mt between the heating device and the building material containing combustible material even the maximum allowable temperature value of 85 °C in the rated heat capacity of the appliance is not exceeded.

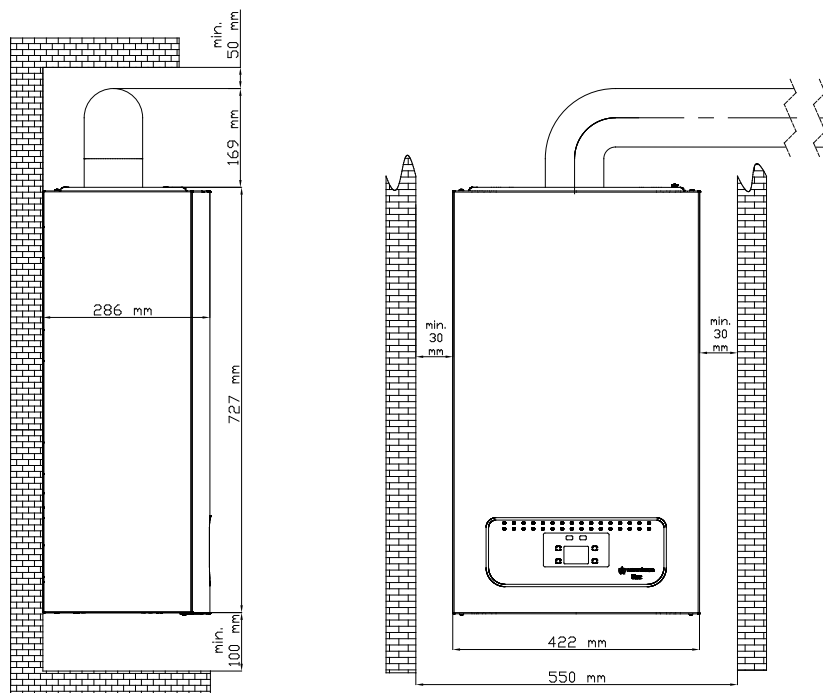


Figure 6 Boiler minimum dimensions in the cabinet *Minimum clearances required for servicing

1.2.4. Dimensions and Connections

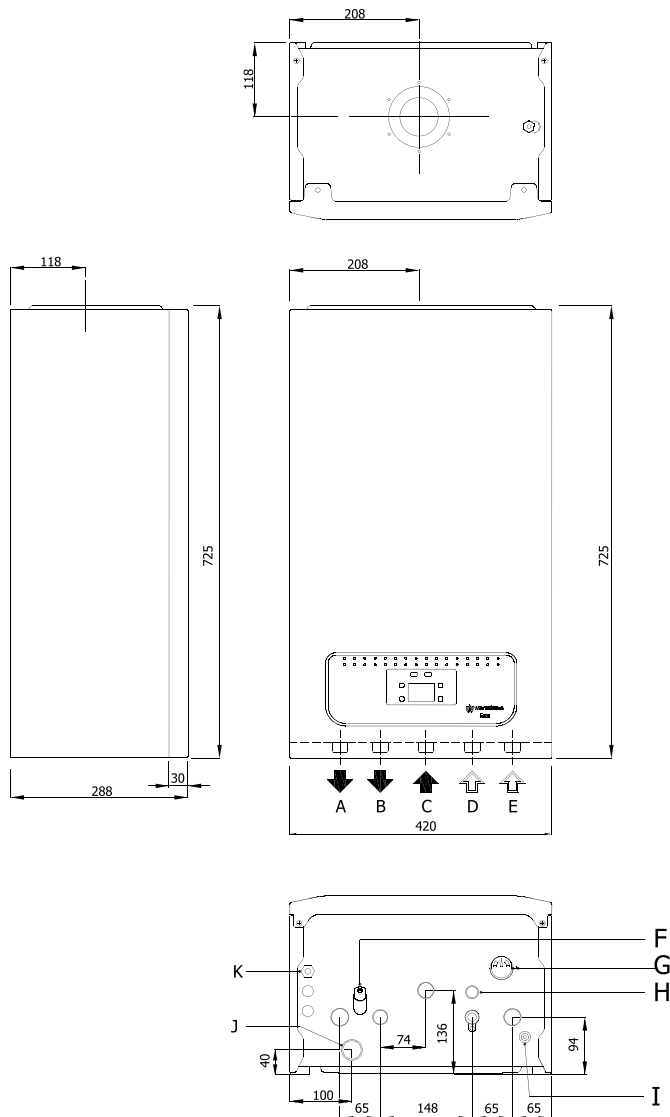


Figure 7 Ewa combi dimensions and connections

Warmhaus Ewa

- | | |
|------------------------------|---------------------------------|
| A: Central heating flow | F: Filling valve |
| B: Domestic hot water outlet | G: Manometer |
| C: Gas inlet | H: Pressure relief valve outlet |
| D: Domestic hot water inlet | I: Drain point |
| E: Central heating return | J: Condensate drain |
| | K: 230V 50HZ AC |

1.2.5. Natural Gas and LPG Connection (Device Category I_{2H}, II_{2H3P})

Our combi devices are manufactured to be operated with methane gas (G20) and L.P.G. Gas supply pipes should be equal to or higher than 3/4" G combi connections. Prior to making the gas connection, a studious internal cleaning should be made to all fuel supply installation pipe furnishings as possible wastes may distort smooth operation and reliability of the combi. It should be controlled whether the gas distributed from the main line is as envisaged (see the table on the combi device).

In case of having differences, an intervention should be made on the combi and converted to other gas type (consult our authorized services in case of gas change). Also, in case of being inadequate, the network dynamic

pressure (methane or LPG) to be used for supplying the combi should be controlled regarding the impact on combi strength and difficulties possible for the user. Ensure the correctness of gas valve connection. Flammable gas supply pipe should be able to supply correct adequate gas amount to the boiler when the combi is at full power and be projected and sized according to local gas company specification and instructions in order to guarantee the device efficiency. Connection system should comply with legal regulations.

1.2.6. Flammable Gas Quality

The combi is designed to be used with pure fuel not containing any foreign substances; therefore, required filter systems must be available in the gas supply line (for ensuring purification of the fuel).

1.2.7. In Case of Using LPG Tank

LPG use is recommended for heat requirements over 24 kW. New LPG stock tanks may contain settled gas residues (nitrogen) however, that pauperises the mixture assigned to that device and cause abnormal operations.
- Various alloy layers may be formed during stocking LPG gas in tanks depending on mixture compositions. That causes a change in heating power of mixture assigned to the device and changes efficiency of the device.

1.2.8. In Case of Using Bottled Gas

- 300 mmSS pressurized hood should be used for LPG.
- 500 mmSS hood should not be used.
- 370 mmSS pressurized hood should be used for Propane.
- Do not place tubes at cold places having risk of snow for preventing frost during winter months.
- Do not place tubes in hot places containing ovens, fireplaces for preventing dangers!
- Do not make connection with single tube and use LPG collector set for double, triple uses.
- The distance between the collector and tube should be maximum 125 cm.
- Copper pipe installation should not used for distances longer than 125 cm.
- Hose connection ends should be tightened with clamp and no other tools should be used.
- Gas installation rules with use of LPG tank and industrial tubes should comply with local standards and to be performed by expert installation teams and certified by the company undertaking the construction. In case of failing to fulfil these conditions, combi shall not be commissioned by Warmhaus Authorized Services.

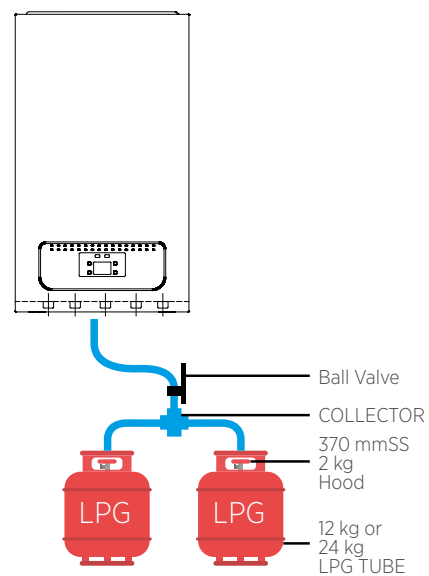



Figure 8 Combi bottled gas connection

1.2.9. Filling the siphon for Condensation Line

After the wall hanging operation of condensing combi, electrical connections, radiator lines, hot tap water connections and condensation water drainage line are completed, condensation siphon should be filled with water (Figure 9).

 Condensation line drain line impermeability should be maintained. However, prior to installation of the flue bend of the siphon in the combi, discharge 1 litre water to the internal flue against the possibility of flue gas leakage possibility at first start. Thus, waste gas leakage possibility shall be prevented with the water available in siphon.

Slope of condensation water hose and line must be always towards down.

Attentions For Condensate Drain:

FAILURE TO INSTALL THE CONDENSATE DISCHARGE PIPEWORK CORRECTLY WILL AFFECT THE RELIABLE OPERATION OF THE BOILER

1. Ensure the discharge of condensate complies with any national or local regulations in force.
2. The discharge pipe should be run in a proprietary drain pipe material e.g. PVC, PVC-U, ABS, PVC-C or PP.
3. Metal pipework is NOT suitable for use in condensate discharge systems.
4. Any condensate discharge pipework external to the building (or in an unheated part of it e.g. garage) must be insulated to protect against frost.
5. In all cases discharge pipe must be installed to aid disposal of the condensate. To reduce the risk of condensate being trapped, as few bends and fittings as possible should be used.
6. When discharging condensate into a soil stack or waste pipe the effects of existing plumbing must be considered. If soil pipes or waste pipes are subjected to internal pressure fluctuations when WC's are flushed or sinks emptied then back-pressure may force water out of the boiler trap and cause appliance lockout.
7. Condensate outlet shall not be modified or blocked always be downwards.

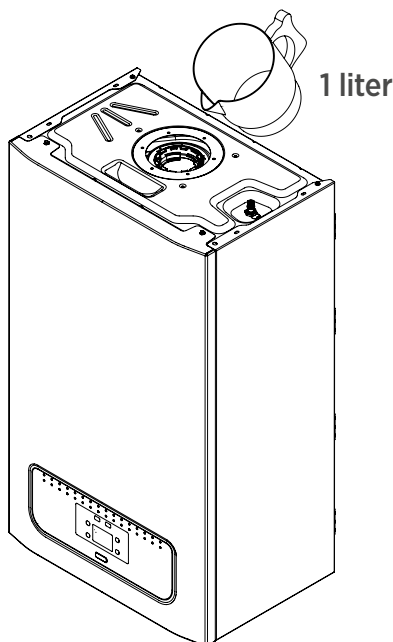


Figure 9 Filling the condensation siphon

1.2.10. Installation at Partially Protected Exteriors

Installation instructions: This combi can be installed in partially protected exteriors. Partially protected place means that the combi is located at places without direct exposure to atmospheric factors and precipitations (rain, snow, etc.).

Frost protection: Combi device is equipped with a system that prevents frost by automatically activating the pump and boiler when the internal water is lower than 5°C.

Frost protection function only depends on below given conditions:

- If the combi is correctly connected to gas and electrical sources;
- If the combi is supplied from gas and electricity sources (if the main switch is open) in a fixed way;
- If the Combi is not in failure situation due to lack of ignition;
- In order to maintain circulation of installation water, installation valves and radiator valves under the combi must be open.

Under these conditions, the combi is protected against frost up to -5°C environment temperature.

Lowest Temperature -5°C. In case the combi is installed in an environment with a temperature lower than -5°C, and gas supply is interrupted or passed into failure due to failing to make ignition, Frost Prevention System shall not be activated and frost/failure shall occur in the device. Following instructions should be followed for preventing the risk of frost:

- Heating circuit, into antifreeze (special heating devices) a good brand of antifreeze manufacturer's instructions are followed carefully so as it deems necessary for the rate and the minimum temperature is desired to be stored in the heater frost protection with the matter.

Materials used for manufacturing the combi are resistant against glycol and propylene based anti-frost liquids. Follow warnings of supplier company regarding their lives and possible disposals.

Frost / icing protection of the combi is guaranteed only under these conditions:

Damages arising from failing to follow above mentioned issues and interruption of electricity supply shall be excluded from validity of the warranty.

In case the combi device is installed at places with temperature lower than 0°C (both for tap water and radiator purposes) both radiator installation and tap water pipes must be insulated.

1.2.11. Electrical Connections

Electrical safety of combi shall be realized if completely connected to an effective earthing installation that follows safety instructions in force. No earthing shall be made from the neutral line on the socket for places not having earthing! It is dangerous and unacceptable to use gas and water connection pipes for earthing.

WARMHAUS A.Ş. cannot be held as responsible for any damages and losses on individuals or commodities arising from failing to provide earth connection of the combi and not being provided by a competent electrician in accordance with directives and standards in force.

Also, ensure that the electricity installation complies with the maximum power to be supplied as indicated in technical specifications label on the combi. Combi is given with "X" type socketless special power source cables. "Warmhaus combi has an IPX5D protection level. Power supply cable should be connected by relying on earth connection and L-N poles in a 230 V +%10; -%15 50Hz grid, high voltage category 3rd class multiple pole disconnecter should be envisaged on the same grid. Apply out Authorized Warmhaus Service for replacement of the cable.



Power supply cable should follow the defined route. In case fuses on the adjustment card are replaced, please use 2A or 3,15A speed type fuses. In order to feed the device from the general electricity grid, adapter, multiple sockets and extension cables are not allowed to use.

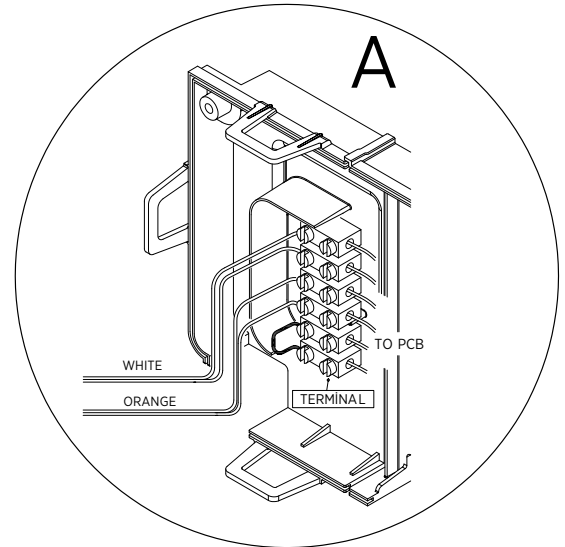
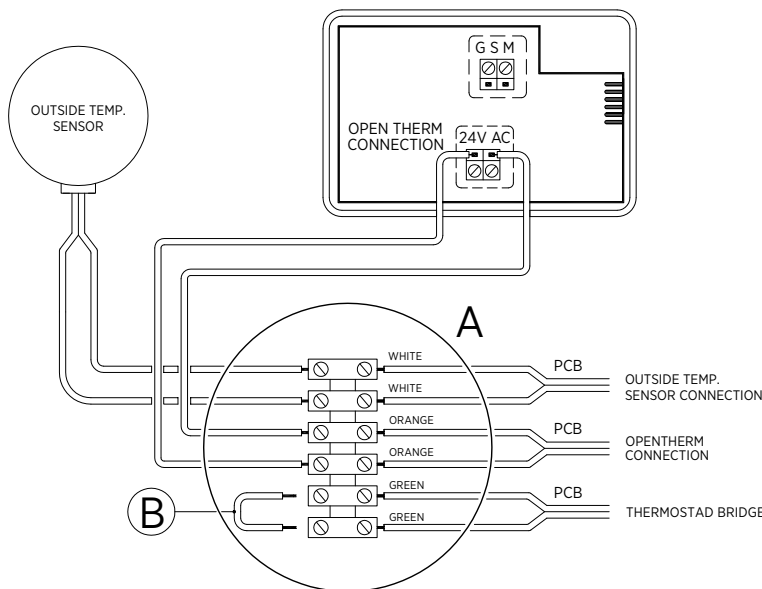
1.2.12. Optional Controls: Room Thermostat, Outside Sensor and Others

Room thermostat, Outside Temperature Sensor, etc. control devices must be connected to Warmhaus combi devices by the authorized service personnel; in case connections are performed by unauthorized persons, combi warranty shall be void.



Room thermostat, Outside Temperature Sensor, etc. control devices are provided as optional accessories for Warmhaus combi devices and they must be Warmhaus approved.

Please follow user's instructions for placement of Outside Temperature Sensor.



WARNING: REMOVE THE BRIDGE WIRE FROM THE ROOM THERMOSTAT/TIMER THERMINAL (B) WHEN THE TIMER OR OPENTHERM CONNECTED THE BOILER!

Figure 10 Combi room thermostat and Outside Temperature Sensor connections

COMBI CONTROL ACCESSORIES



WT-RF03 Large Screen, Modulated, Weekly Program Scheduled, Wireless room thermostat
 Product code: 153.11.660.600022



RC07 Modulated, Weekly Program Scheduled, Cable room thermostat
 Product code: 153.11.660.600020





WT-08 Large Screen, Modulated, Weekly Program Scheduled, Cable room thermostat
 Product code: 153.11.660.600021



WDHS-01 External Weather Temperature Sensor
 Product code: 153.11.660.600001

Instruction for Installation: Installation of the appliance shall be carried out only by Warmhaus Authorized Service. The dual cable required for installation shall be provided by the dealer/customer.

 Room thermostat shall be mounted 1,25 to 1,5 m above the ground.

 It shall be minimum 30 cm away from any doors or windows allowing airflows.

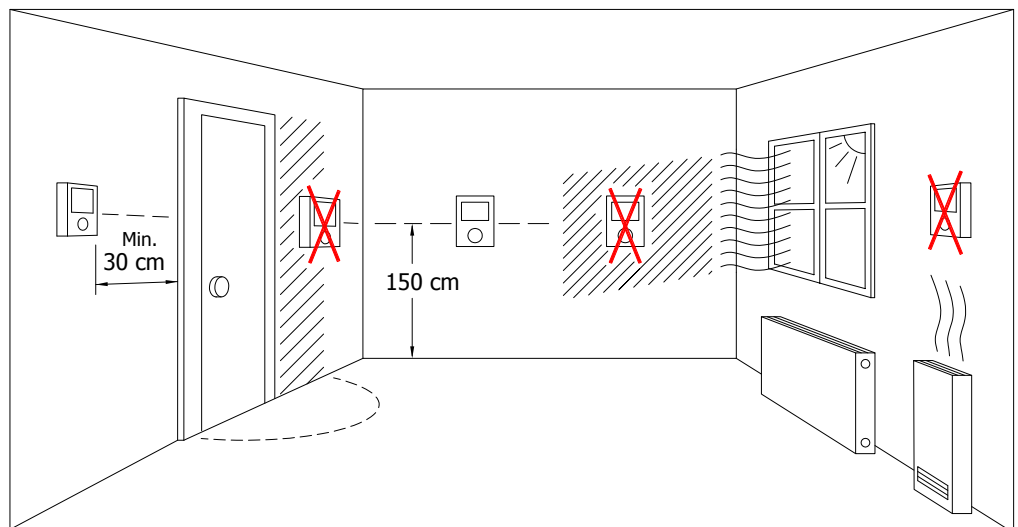


Figure 11 Position of thermostat

1.3. HYDRAULIC INSTALLATION RULES

1.3.1. Radiator and DHW Installations

Radiator and ground heating installation should be constructed in accordance with legislation in force technical specifications and heat loss calculation. Radiator type and amount and ground heating installation pipe amount should comply with the heat loss calculation.

- Radiator installation should be designed as resisting to at least 6 bars.
- If the city grid pressure is higher than 6,5 bars, pressure reducer must be installed.
- It is recommended to construct the radiator installation as double line and without using bends and joints as much as possible.
- Strainer filter must be installed in radiator return and tap water (city grid) input line.
- For example; as the radiator cycle's 8 litres expansion (24 kW) tank can support maximum (80 °C in radiator system) 140 litre and (55°C in ground heating system) 170 litre installation water expansion, additional expansion tank should be used for larger installation volumes. 170 litre installation water expansion, additional expansion tank should be used for larger installation volumes.
- If the room thermostat and thermostatic radiator valve shall be used together; thermostatic valve should not be installed in radiators in the place where room thermostat is available!
- Cross connection must be made for efficient functioning in radiators longer than 1,5 m.
- Covers should be used for radiator and hot tap water wall passages and fixed with wall clamps for preventing slopes in expansions due to heating.
- Combi can function under minimum 0,5 bar tap water pressure and that corresponds to a very low flow rate and therefore, it shall not possible to adjust the requested tap water temperature. For this reason, tap water line should be installed at shortest distance with pipe having at least ½" internal diameter and by using bends as low as possible. At least 1 bar pressurized grid input water should be supplied for acquiring the comfort requested in the hot tap water. Hydrophore should be used if required.
- Prior to filling the radiator installation, it must be flushed and all wastes must be cleaned!

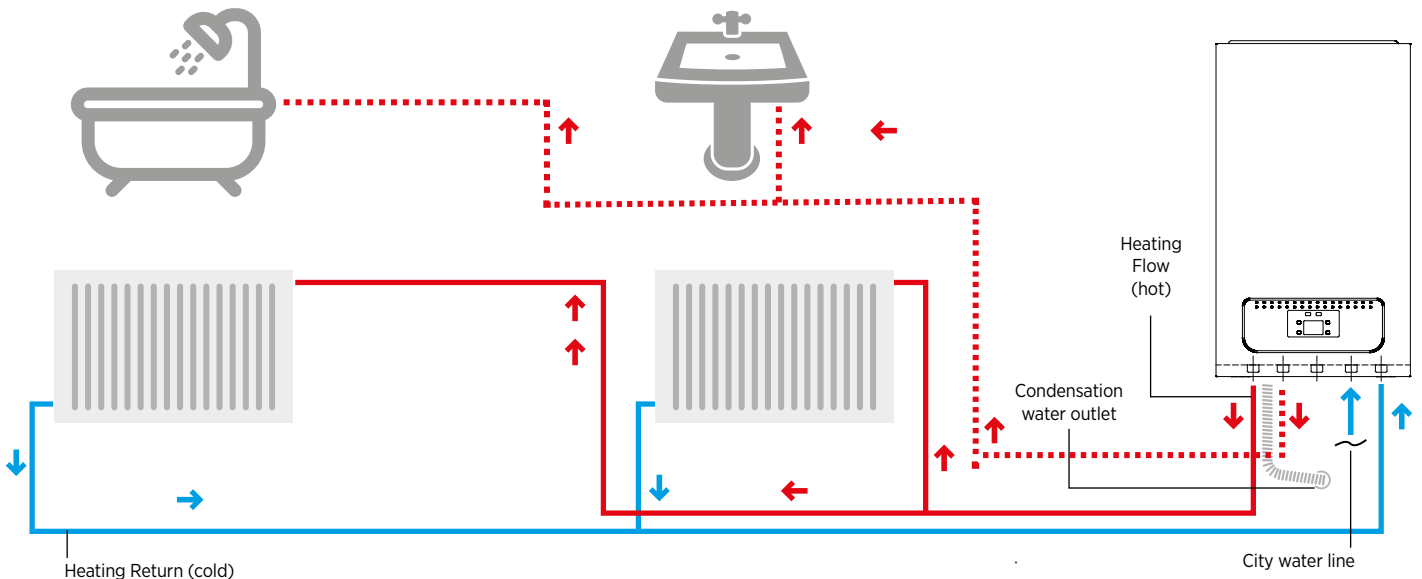


Figure 12 Combi general installation scheme



Warning: In order to prevent invalidity of device warranty prior to making combi connections, clean residues likely to be occurred in main heat exchangers (pipes, heater assembly, etc.) via dissolvent or equal substances, otherwise they will negatively affect functioning of the combi. In order to prevent lime scales in the radiator installation and therefore faulty operation of installation, follow rules envisaged by standards regarding domestic tap water and radiator installations.



Warning: It is recommended to install a Anti-Lime Kit for preventing occurrence of lime scales at places where water hardness is higher than 25 French degree in order to protect service life and efficiency of the hot tap water heat exchanger.

1.3.2. Filling/Emptying Radiator Installation

Ensure that the pressure reaches to 1-1,5 bar in the Manometer indicated with G symbol by rotating the Fill Tap counter clockwise that is indicated with F symbol in Lower Figure 7 for filling the closed circuit radiator installation after installation of the and close the Filling Tap by rotating clockwise and discharge air of radiators via air discharge valves.

Combi safety valve discharge should be connected to a discharge funnel. Otherwise, safety valve shall be activated and manufacturer shall not be responsible due to water discharge to the place of device.

Discharging the Condensation Water

For discharging the condensation water produced by the device, it should be connected to waste water grid via at least Ø 24 mm pipes resistant to acidic condensation waters. Connection of the device with waste water grid should be made as preventing frost of the liquid contained in the connection installation. Prior to starting the device, ensure that the condensation water is correctly discharged; then verify that the siphon is filled through condensation at first start (parag. 2.2.10). Also, instructions in force, national and local arrangements should be taken into consideration for discharge of waste waters.

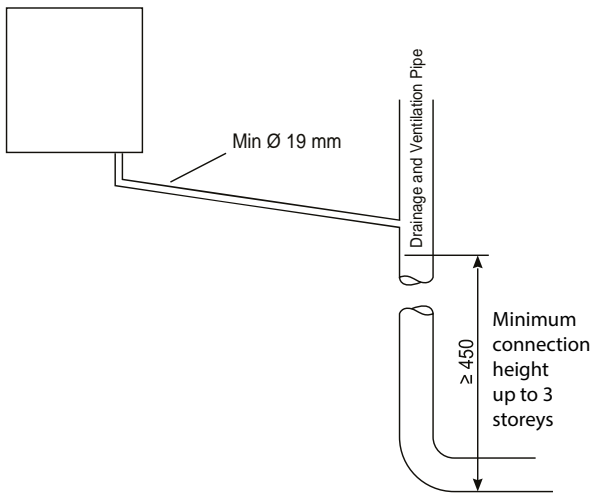


Figure 13 Connection of the Condensate Water Drainage Pipe to Internal Drainage and Ventilation Pipe

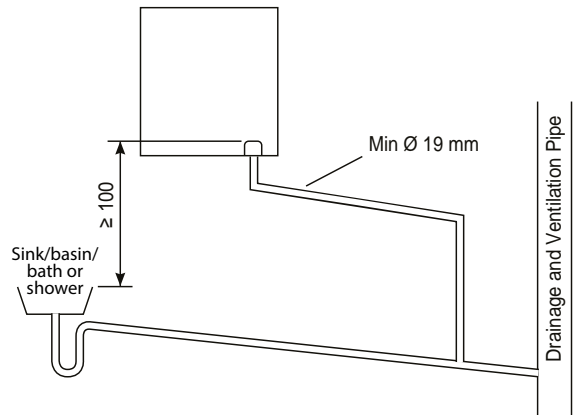


Figure 14 Connection of Condensate Water Drainage Pipe at Indoor Bathroom Drainage Lower Level

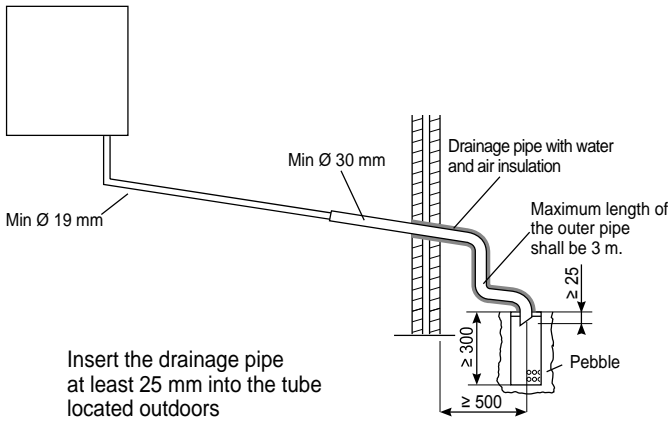


Figure 15 Outside Connection of Condensate Water Drainage Pipe

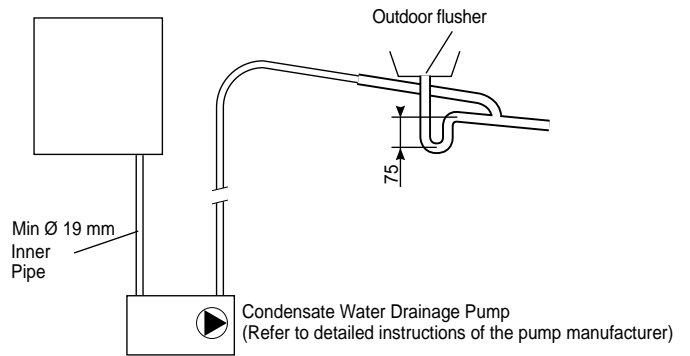


Figure 16 Typical Connection Method of a Condensate Water Drainage Pipe (refer to detailed instructions of the pump manufacturer)

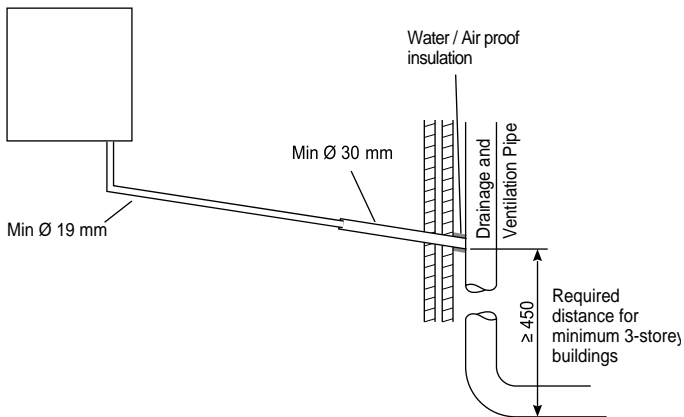


Figure 17 Connection of Condensate Drainage to Drainage and Ventilation Pipe

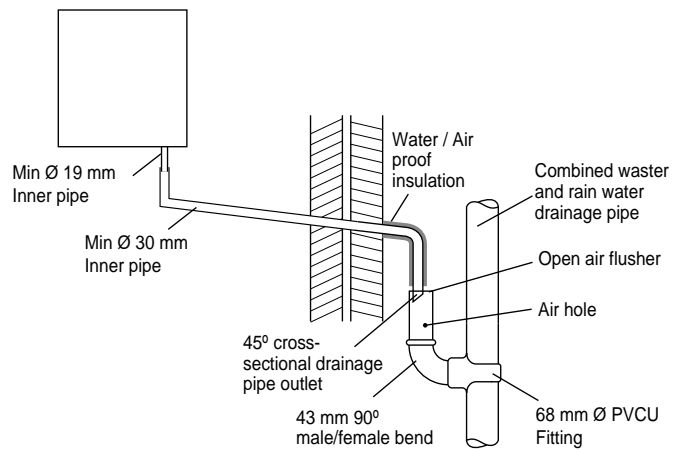


Figure 18 Connection of Condensate Drainage to Rain Water Drainage

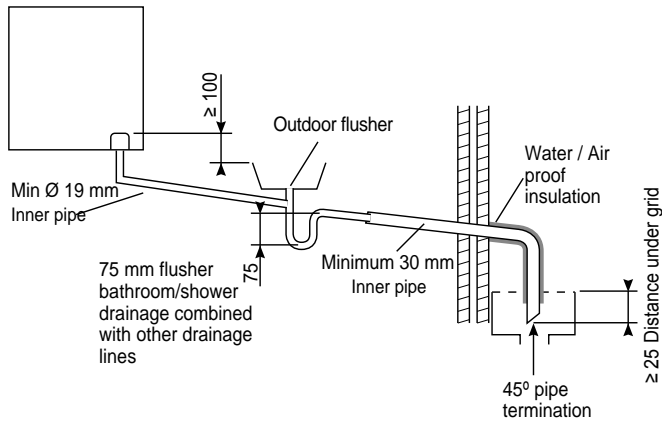


Figure 19 Connection of Condensate Drainage to Rain Drainage Line through Sink, Bathtub or Shower Drainage Pipe

1.3.3. Circulation Pump

Ewa is equipped with a pump having controlled by an external signal PWM (i =feedback signal), the main PCB of combi sends a PWM signal as an actuating variable to the pump. It should be controlled that the pump ensures required flow rate depending on the critic line pressure loss.

1.3.4. Controls for Initial Operation of Combi

In order to keep the combi within scope of warranty; first start must be performed by Warmhaus Authorized Service. Below given initial preparations should be performed prior to authorized service appointment request:

- Gas opening approval certificate should be taken from the local gas company for your gas line,
- Combi electricity connection should be made via 2 or 3 Amps fuse.

- Ensure that no electricity interruption is available at your home.
- Ensure that no grid water interruption is available at your home.
- Ensure that water is supplied to radiator installation and 1,2 - 1,5 bar pressure is seen in the combi manometer.



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Figure 20 Pump with Automatic Air Vent Valve and modulation.

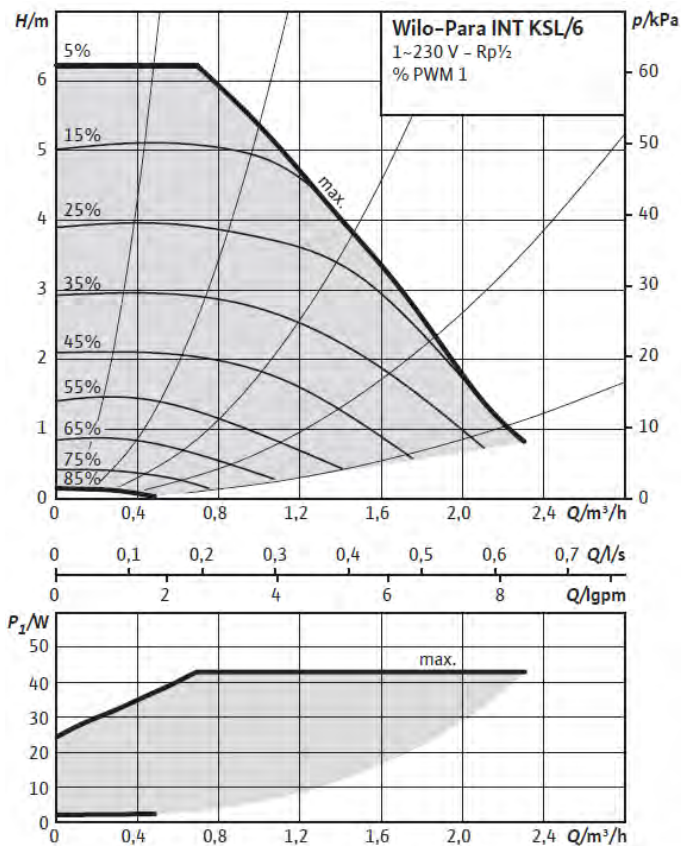


Figure 21 Ewa 24 pump Flow Rate / Pressure graphic

1.3.5. Parts Comprising the Combi

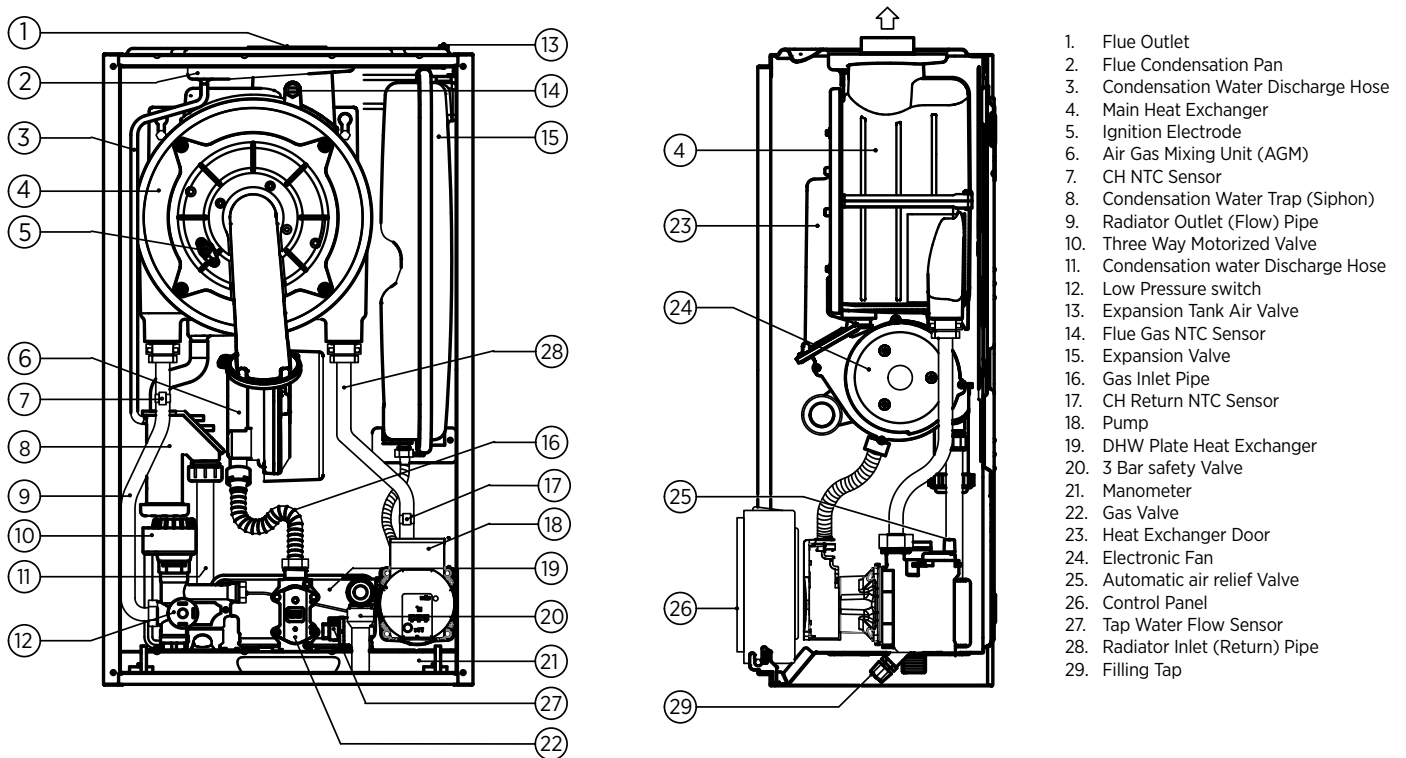


Figure 22 Components of Combi

1.4. COMBI FLUE CONNECTIONS

1.4.1. Exhaust Gas Flue Pipe Set and Accessories Connection




Flue accessory sets to be used in exhaust gas installation of hermetic combi should be original Warmhaus flue sets and they should be used by considering measurements and restrictions given in installation instructions.



In case of using exhaust gas pipe and/or accessories other than Warmhaus original exhaust gas flue pipes and accessories, combi shall not be commissioned by the Authorized Service and thus, no warranty is given!

Warmhaus provides different solutions for placing exhaust gas discharge and air suction pipes in addition to the combi and combi shall not be operated without them.

Combi should only be installed with original Warmhaus air suction and exhaust gas discharge device made of plastic material. Plastic channels cannot be installed without suitable protection against UV and weather conditions to distances over 40 cm and exteriors. Every pipe is defined with an explanatory and discriminative  Warmhaus mark mentioned in remarks.

See Figure 23.

Flue should be installed in accordance with national and local directives.

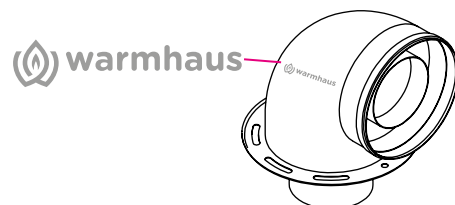
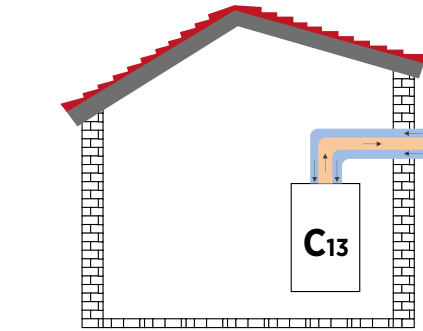


Figure 23 Warmhaus logo is available on the flue bend.

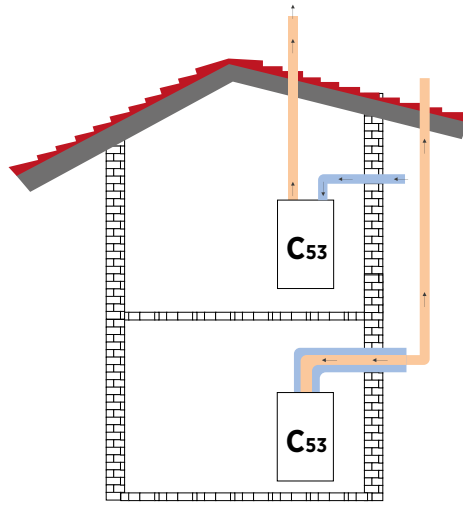
1.4.2. COMBI FLUE CONNECTION TYPES

→ Air
→ Exhaust Gas



Discharge with homocentric flue connection

Figure 24 Hermetic (Concentric) and Flue (Split-Flue) type

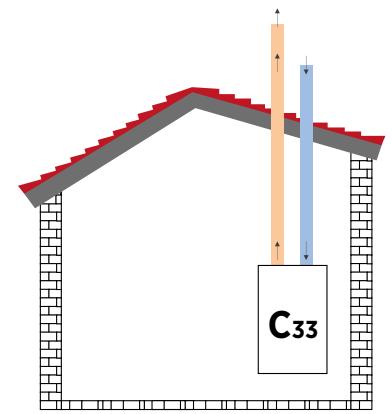


Exhaust gas discharge and fresh air intake with concentric flue kit and split flue kits

For room sealed appliances of the type C5 boilers

Attention: 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.

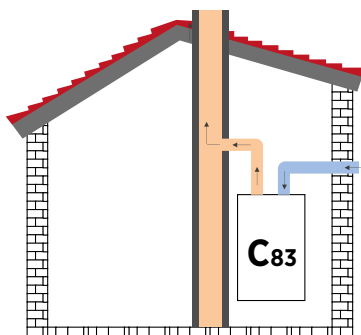
Figure 25 Hermetic concentric and vertical split flue connection.



Exhaust Gas Discharge Fresh Air Intake with Split Flue Sets

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

Figure 26 Vertical Type Hermetic Use with Split Flue Set

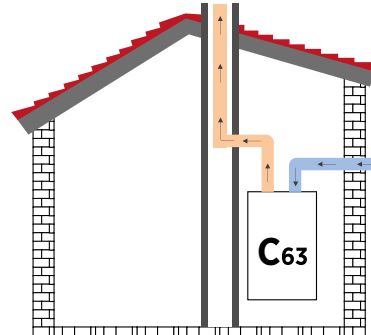


Discharge to building chimney and fresh air intake with split flue connection

For room sealed appliances of the type C8 boilers

- a) overheat combustion products temperature; < 105 °C
- b) G20 : CO₂-content; 9.00 % (tolerance +0,5 / -0,5%); G30 / G31: CO₂-content; 10.00 % (tolerance +0,5 / -0,5 %)
- c) characteristics of the chimney to which the boiler may be connected, according to fig 13.
- d) condensate flow into the appliance is not allowed.

Figure 27 Hermetic vertical split flue connection.



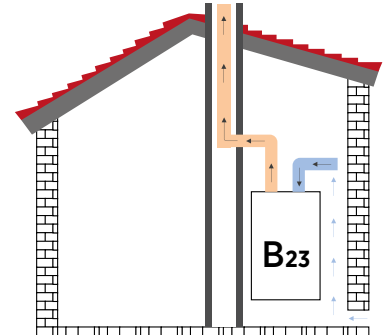
Exhaust gas discharge through the building chimney and fresh intake from outside with split flue sets

For room sealed appliances of the type C6 boilers

overheat combustion products temperature for flue; < 105 °C G20 : CO₂ content at nominal operating conditions; 9.00 % (tolerance : +0,5 / -0,5 %) G30 / G31 : CO₂-content; 10.00 % (tolerance : +0,5 / -0,5 %) maximum allowable draught and maximum allowable pressure difference between combustion air inlet and flue gas outlet (including wind pressures); 120 Pa. characteristics and the applications of the duct system to which the boiler can be connected; condensate flow into the appliance is not allowed. Maximum allowable temperature of combustion air; 40 °C maximum allowable recirculation rate of 10 % under wind conditions.

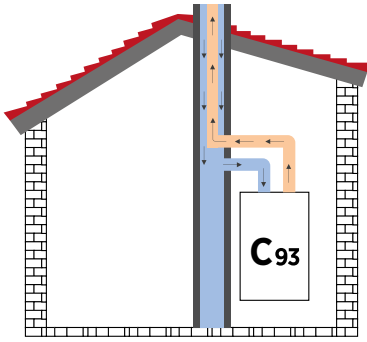
Attention: The terminals for the supply of combustion air and for the evacuation of combustion products shall not be installed on opposite walls of the building.

Figure 28 Building chimney connection with hermetic split flue

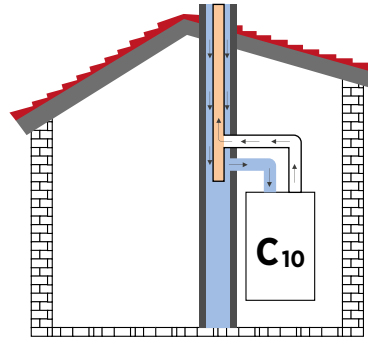


Exhaust gas discharge through the building chimney and fresh intake from outside with split flue sets

Figure 29 Exhaust gas discharge through the building chimney and fresh intake from the building chimney with split flue sets



Attention: The minimum usable diameter must not be under 80 mm or equivalent for the vertical duct supplying the combustion air.



Attention:

- nominal working combustion product temperature : > 70°C max conditions
- overheat combustion products temperature : 105° C
- the minimum length of the specified connecting ducts; 1 mt / maximum length of the specified connecting ducts; 10 mt
- For size/shape of the end of the fitting please refer 2.2.14. Installation with Vertical Flue Sets page 13, Fig.26.
- Please re adjust TsP Paramater P22 = Flues gas pipe length (value 1 = 1 meter) according to actual flue length
- Its MUST to use NON RETURN valve ON the flue gas system.
- non-return valve function has to be checked annually by authorised service.

Information for the design of the common duct system for a type C(10) boiler

- The boiler is designed to become connected to a common duct system that is designed to operate where the static pressure in the common flue duct might exceed the static pressure in the common air duct by 25 Pa under the condition that n-1 boilers are running at maximum nominal heat input ($Q_{n,max}$) and 1 boiler at the minimum heat input allowed by the controls
- combustion product mass flow rate at maximum nominal heat input are given technical table.
- combustion product mass flow rate at minimum heat input allowed by the controls are given technical table.
- G20 : CO₂ or O₂ content of the combustion products at nominal operating conditions 9 % (+0,5/-0,5)
G30 / G31 : CO₂-content; 10.00 % (tolerance : +%0,5 / -0,5 %)
- minimum allowable pressure difference between combustion product outlet and air inlet shall be declared as -200 Pa (including -100 Pa wind pressure).

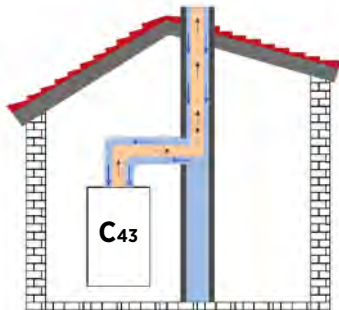
General for connection of a type C(10) boiler to a common duct system

Characteristics and the applications of the common duct system to which the boiler can be connected, with at least the following information:

- the flue duct system shall be CE marked and comply with EN 15502 standart 12.2.1.4.111.2;
- nominal combustion products temperature for dimensioning the common duct system shall be declared as 25 °C;
- the combustion product mass flow rate at maximum heat input shall be specified for every connection point; the terminal of the common duct shall be designed to induce a draft;
- condensate flow into the boiler is allowed;
- maximum allowable recirculation rate of 10 % under wind conditions;
- the maximum allowable pressure difference between combustion product inlet and air outlet of the common duct system shall not be exceeded when n-1 boilers are running at maximum nominal heat input ($Q_{n,max}$) and 1 boiler at the minimum heat input allowed by the controls;
- the common flue duct shall be appropriate for an overpressure of at least 200 Pa;
- the duct system shall not include a draft diverter.

Warning: the boiler if it is installed as a C (10) boiler and IF / when the boiler is disconnected the air outlet and the combustion product inlet openings shall be closed and checked on tightness.

Figure 30 Exhaust gas discharge through the building chimney and fresh intake from the building chimney with split flue sets



Separate ducts are used here for combustion air supply and flue gas discharge, ensuring that every appliance is supplied with fresh combustion air. Air/flue systems of this type are on the market with both parallel and concentric duct configurations. Appliances with either concentric or parallel air/flue system can be connected to both configurations.

Figure 31 Gas appliance with combustion air supply and flue gas discharge designed for connection to an air/flue system.

No place of the output flue should be blocked and not prevent other connections. If the output pipe passes 1000 mm nearby of a plastic or painted groove or 500 mm of painted fringes, an aluminium shield with at least 1000 mm length should be placed below the groove or fringe. Output pipe should be at least 2 m over surfaces those may be reached by individuals.

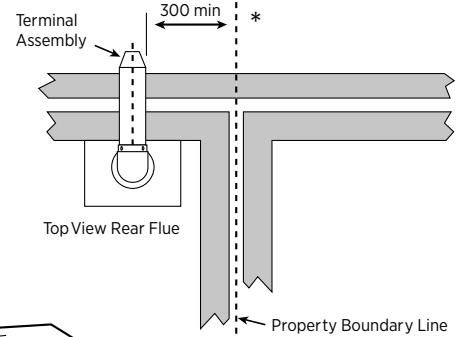
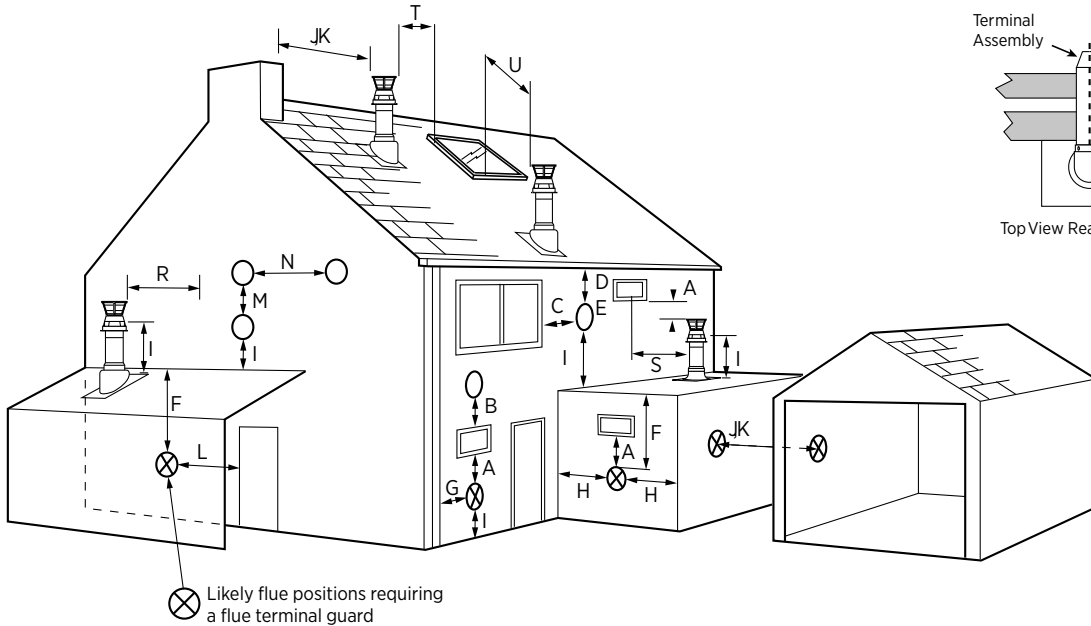
Under certain weather conditions, output pipe may emit water vapour; installation should not be performed at places where this vapour may cause discomfort.

Exhaust gases should be prevented from entering flue ventilation spaces.

Flue system of combi may be installed from inside the room without requiring intervention from the external wall. For that reason, a housing should be installed in the wall for lining the internal surface of channel wherein the output pipe passes through the wall, particularly for thick walls.

1.4.3. Peripheral Distances of Flue Output Connections

In order to position the flue set output pipe



NOTE: The distance from a fanned draught appliance terminal installed parallel to a boundary may not be less than 300 mm in accordance with the diagram below

Figure 32 Environmental locations of flue

	Terminal Position with Minimum Distance	(mm)
A ¹	Directly below an opening, air brick, opening windows, etc.	300
B ¹	Above an opening, air brick, opening window etc.	300
C ¹	Horizontally to an opening, air brick, opening window etc.	300
D ²	Below gutters, soil pipes or drain pipes.	25 (75)
E ²	Below eaves.	25 (200)
F ²	Below balconies or car port roof.	25 (200)
G ²	From a vertical drain pipe or soil pipe.	25 (150)
H ²	From an internal or external corner.	25 (300)
I	Above ground, roof or balcony level.	300
J	From a surface or boundary line facing a terminal.	600

	Terminal Position with Minimum Distance	(mm)
K	From a terminal facing a terminal (Horizontal flue). From a terminal facing a terminal (Vertical flue).	1200 600
L	From an opening in carport (e.g. door, window) into the dwelling.	1200
M	Vertically from a terminal on the same wall.	1500
N	Horizontally from a terminal on the same wall.	300
R	From adjacent wall to flue (vertical only).	300
S	From an adjacent opening window (vertical only).	1000
T	Adjacent to windows or openings on pitched and flat roofs	600
U	Below windows or openings on pitched roofs	2000

1 In addition, the terminal should be no nearer than 150 mm to an opening in the building fabric formed for the purpose of accommodating a built-in element such as a window frame.
2 Only ONE 25mm clearance is allowed per installation. If one of the dimensions D, E, F, G or H is 25mm then the remainder MUST be as shown in brackets, in accordance with B.S.5440-1.

1.4.4. Installation with Horizontal Flue Sets

Connecting Horizontal Concentric Flue Set to the Combi, (original diameter DN 60/100 mm)

Since your combi is hermetic model, it takes the used air from exterior and discharges exhaust gases created as the result of burning through the same flue group. In order to prevent emission of excessively harmful exhaust gases, flue usage and installation is very important, therefore warnings should be taken into consideration when flue connections are being performed.

- Make required flue selection for the flue connection to be made external and installation place of the combi. If the standard flue set is not

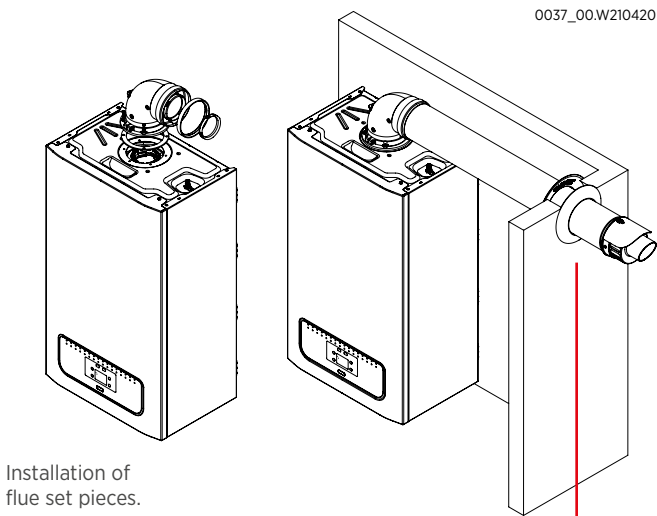
adequate, please select most suitable elements from our list of connection accessories considering warnings given in our user's guide.

- Fix the flange under the Bend piece (1) by using the Flange Bolt (10) via Flange Connection Screws (11) to holes on the combi.
- 2 impermeability bolts within the hermetic flue set (2) are placed into internal pipe slots at both ends of the 90° Bend.
- Place the exterior wall (EPDM) bolt into the flue terminal as seen in Figure 19 for grouping the flue output terminal. After placing the flue output terminal through exterior of wall and the previously opened hole, fix the Interior Wall Connection Bolt (7) into the flue terminal.

1.5. INSTALLING THE FLUE SYSTEM

Apply a suitable lubricant to the sealing joints before connecting any flue products and ensure the horizontal flue terminal is installed level without a slope.

The flue pipe must be sealed internally and externally with the wall seals supplied.



Installation of flue set pieces.

Figure 33 Concentric flue kit wall output.

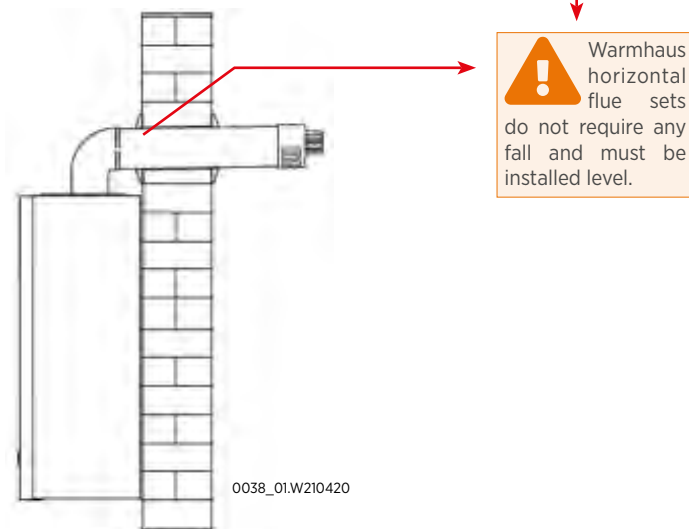


Figure 34. Installation of the Flue Kit without slope

! During installation please ensure that all flue extensions are installed with a slope back to the boiler between 1.5 degree and 3 degrees. Also ensure the pipe is supported every 1 meter and change in direction

60/100 mm Concentric flue systems information

Only approved Warmhaus flue systems can be connected to our appliance and no other flues have been tested or approved to work with any Warmhaus appliances – see below our list of standard products:

Concealed Flue Configurations

Where our Warmhaus flue system is to be installed in concealed locations provisions must be made for inspection and service requirements.

- Minimum 300 mm square inspection hatches must be fitted.
- The inspection hatch edge must not be fitted more than 1.5 meters away from a flue joint
- Inspection hatches should be fitted at every change of direction.

Flue Data

60/100mm Concentric flue systems information

Warmhaus flue pipe technical specification:

Horizontal Termination:

- Maximum length = 10 meters including the bend or adaptor connected directly to the boiler.
- Additional horizontal flue pipes should always be installed with a 1.5° to 3° fall from the terminal to allow condensate to run back to the boiler (1.5° = 25 mm per meter).
- Effective flue length for the following:

Elbow	Equivalent To Straight Length
45 Degree	0.5 meter
90 Degree	1.0 meter

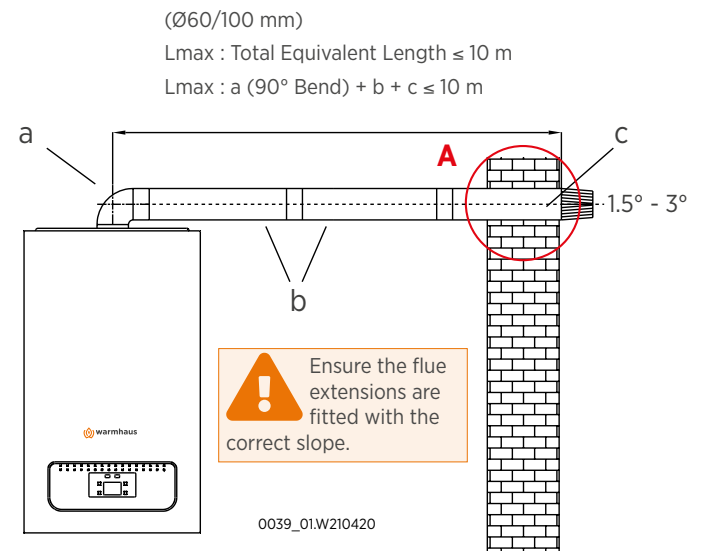


Figure 35 Single 90° bended sample flue installation

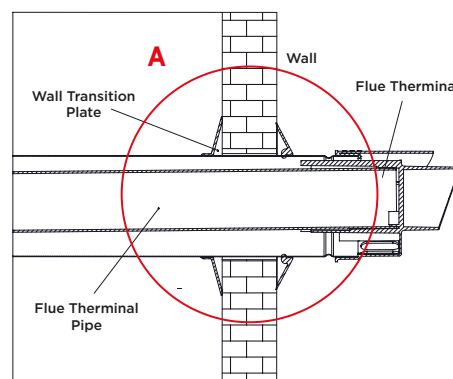
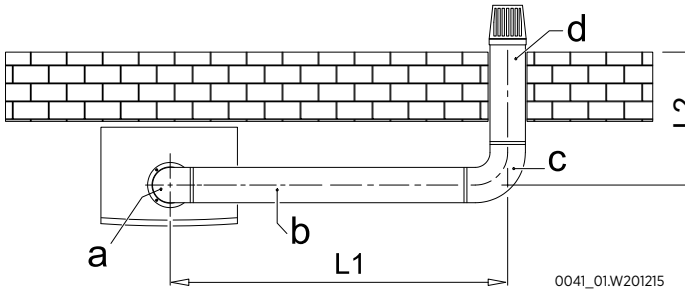


Figure 36 Transition detail of the horizontal flue kit through the wall

Total equivalent length ≤ 10 m

$$a (90^\circ \text{ Elbow}) + b + c (90^\circ \text{ Elbow}) + d \leq 10 \text{ m}$$

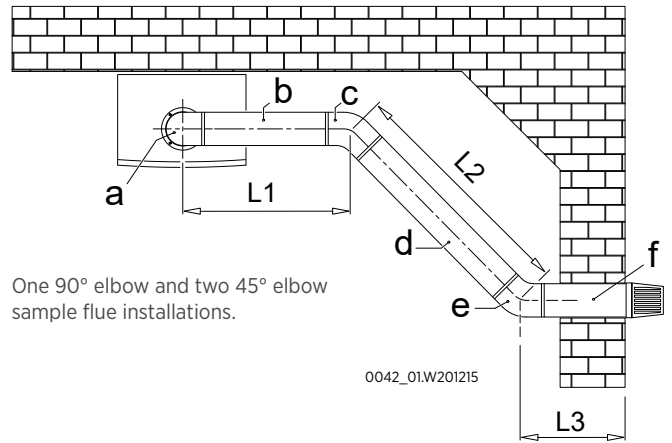


- a- Standard Flue Set Elbow (90°)
- b- Flue Extension Pipe
- c- Additional 90° Elbow = 1 m
- d- Standard Flue Set Pipe

Figure 37. Two 90° elbow sample flue installations

Total equivalent length ≤ 10 m

$$a (90^\circ \text{ Elbow}) + b + c (45^\circ \text{ Elbow}) + d + e (45^\circ \text{ Elbow}) + f \leq 10 \text{ m}$$



One 90° elbow and two 45° elbow sample flue installations.

0042_01.W201215

Total length of hermetic flue set should not exceed 10 m with single elbow horizontally. Also, this total length reduces by 1 m with every 90° elbows or two 45° elbows. Maximum 3 pieces of 90° elbow can be used.

- a- Standard Flue Set Elbow (90°)
- b- Flue Extension Pipe (L1)
- c- Additional 45° Elbow = 0,5 m
- d- Standard Flue Set Pipe (L2)
- e- Additional 45° Elbow = 0,5 m
- f- Standard Flue Set Pipe (L3)

Figure 38 Single 90° and two 45° elbow sample flue installations

1.6. INSTALLATION WITH VERTICAL FLUE SETS (Ø60/100 MM)

Your Warmhaus boiler can also be installed with a vertical flue system that can terminate on both flat and pitched roofs, vertical flue installations must not exceed 11 m in total.

Apply a suitable lubricant to the sealing joints before connecting any flue products and ensure the vertical flue terminal is installed level without a slope.

The vertical flue terminal can be fitted to both flat and pitched surfaces.

Flue Data



WARNING

Warmhaus flue pipe technical specification:

Vertical Termination:

- Maximum length = 11 meters including the bend or adaptor connected directly to the boiler.
- Effective flue length for the following:

Elbow	Equivalent To Straight Length
45 Degree	0.5 meter
90 Degree	1.0 meter

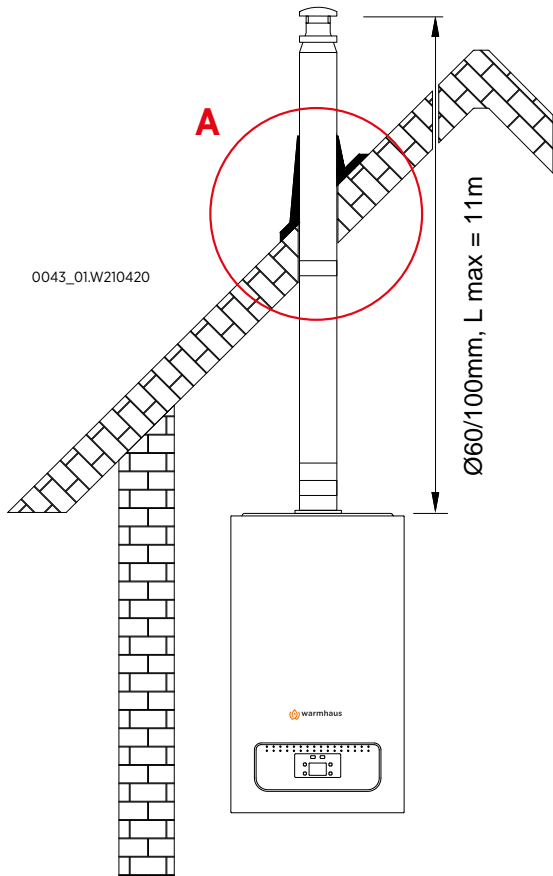


Figure 39 Vertical flue set installation

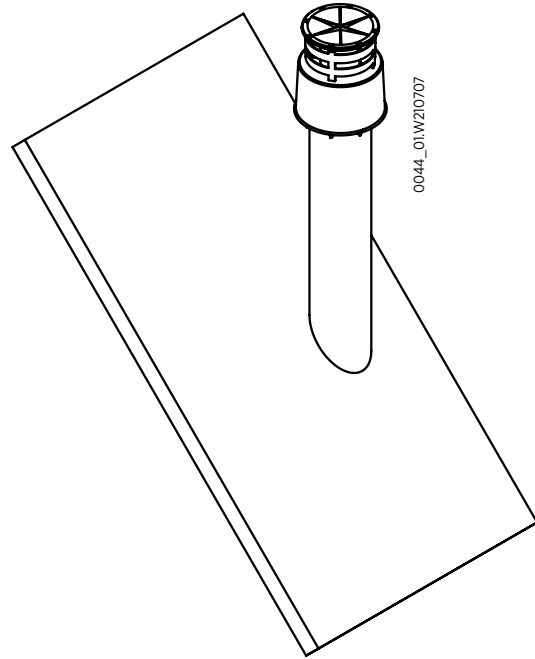


Figure 40 Waste gas vertical outlet chimney set and Pitched Roof Outlet Tile part installation for Roof



INFORMATION: The vertical flue terminal can be fitted to both flat and pitched surfaces.

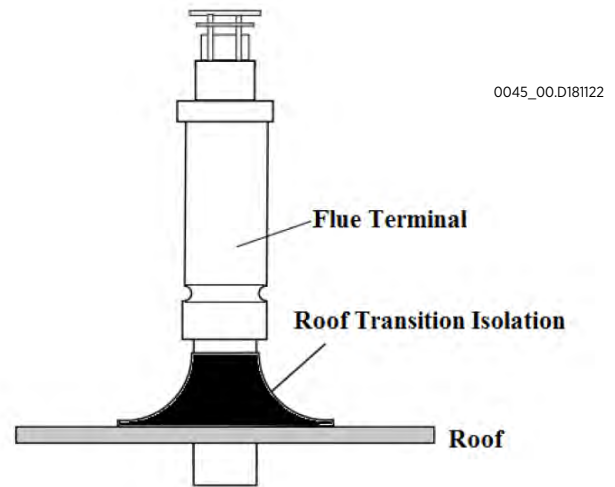
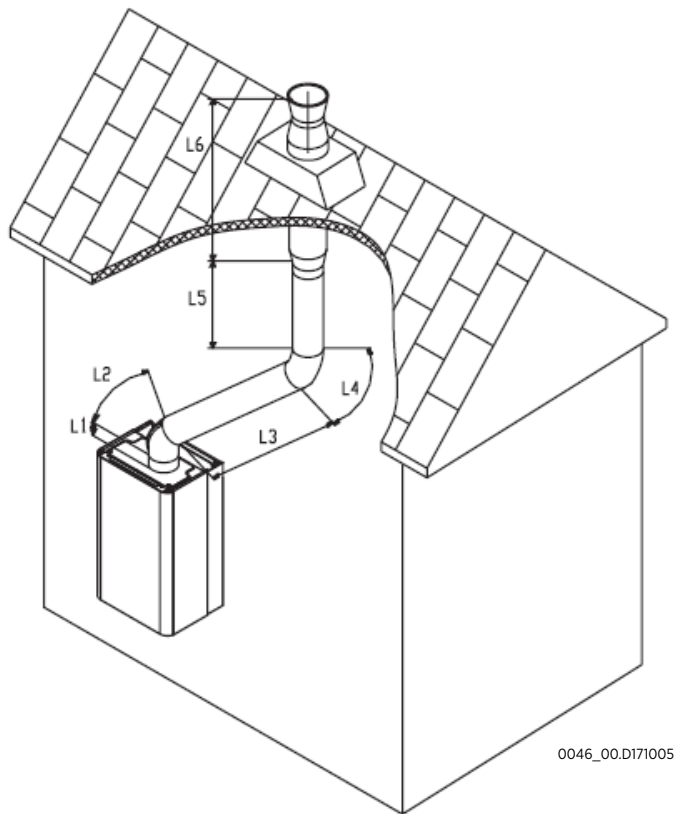


Figure 41 Waste gas vertical outlet flue set Roof insulation and flue transition part



0046_00.D171005

Figure 42 Vertical flue set installation application.

Implementation:

L1 = 0.3 m

L2 = 0.5 m. (45° elbow equivalent length)

L3 = 2.0 m.

L4 = 0.5 m. (45° elbow equivalent length)

L5 = 1.0 m.

L6 = 1.5 m.

L Total = 6.3 m.

6.3 m. ≤ Lmax = 11 m.

Correct in implementation.



When installing a replacement boiler a new flue system is delivered with the boiler as original flue set must be used and re-using the existing boiler flue installation is strictly not acceptable

Design

Individual air supply and flue outlet pipes are used as standard. The material approved for this application which MUST be used are:

Termination Of The Flue And Air

The flue and air pipes may terminate independently through any external walls within the same dwelling except on opposing walls, within the maximum lengths shown in graph below. (Alternatively a vertical flue pipe termination is acceptable.)

The air pipe must have an elbow and 150 mm length of pipe directed downwards with a termination grill fitted.

The air pipe can be situated at the side or beneath the flue pipe to a minimum dimension of 140 mm (see Table.1). It must not be sited above the flue pipe.

The flue and air pipes must extend by at least 40 mm from the wall surface.

Condensing boiler emit a visible plume of water vapour from the flue terminal, this is normal. It is the responsibility of the installer to judiciously select a terminal location that does not cause a nuisance.

If either the flue or air terminal is below a height of 2 m from ground level a terminal guard must be fitted.

Note. Any vertical termination MUST have the terminals fitted and the air intake comply with the dimensions above

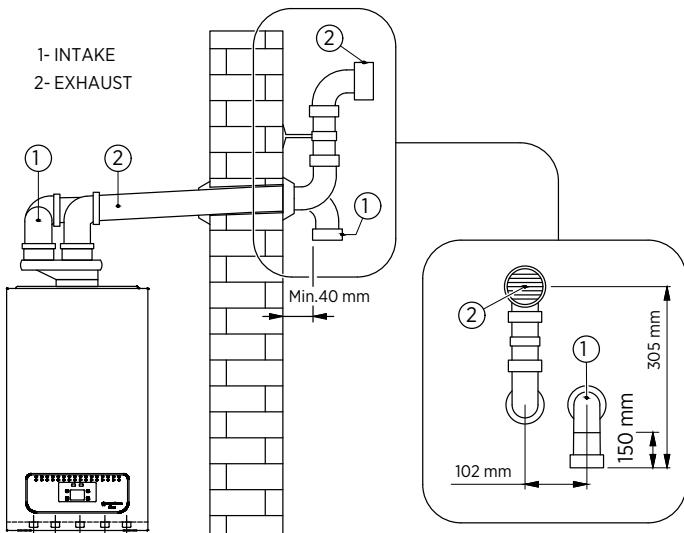


Figure 43

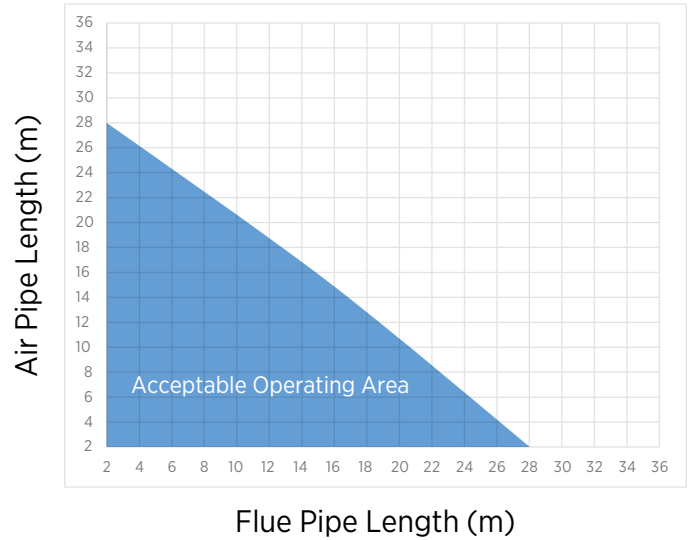
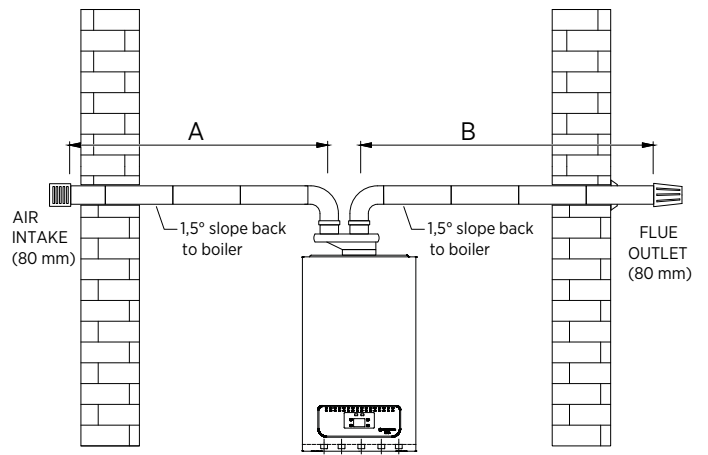
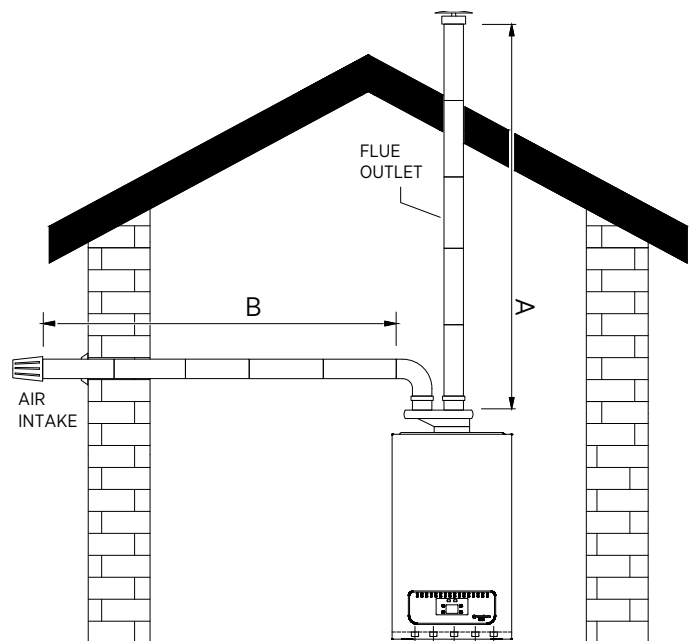


Table 1 Air Pipe and Flue Pipe Lengths Diagram



TOTAL HORIZONTAL LENGTH : $A+B = 30$ m

Figure 44 Horizontal Air-Flue Lengths






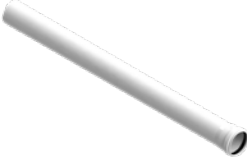
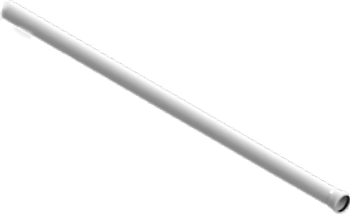






TOTAL VERTICAL LENGTH: $A+B = 32$ m

Figure 45 Vertical Air and Horizontal Flue Lengths







1.7. CONCENTRIC FLUE KITS FOR CONDENSING BOILERS (Ø60/100 MM)

	Product Name	Product Code
 <p>0047_03.D210120</p>	<p>(Ø60/100) Condensing Concentric Horizontal Flue Set</p> <p>$L_{\text{Horizontal}} = L_{\text{From the center of the elbow}} + L_{\text{Terminal}}$</p> <p>$L_{\text{Total}} = 115 + 790 = 905 \text{ mm}$</p>	15311014000002 (White)
 <p>0048_03.D210120</p>	<p>(Ø60-100) Condensing Vertical Flue Set with Adapter</p> <p>$L = [L_{\text{Term}} + L_{\text{Extpipe}} + L_{\text{Adapter}} = 1000 + 500 + 145] = 1645 \text{ mm}$</p> <p>Extension Parts: (Ø60/100) Condensing Flue Extension, $L_{\text{Extpipe}} = 500 \text{ mm}$, (Ø60/100) Condensing Vertical Adapter, $L_{\text{Adapt}} = 145 \text{ mm}$</p>	15311660600013 (Black-White)
 <p>0049_03.D210120</p>	<p>(Ø60/100) Condensing Flue Extension</p> <p>$L = 500 \text{ mm}$</p>	15311660600014 (White)
 <p>0050_03.D210120</p>	<p>(Ø60/100) Condensing Flue Extension</p> <p>$L = 1000 \text{ mm}$</p>	15311660600015 (White)
 <p>0051_03.D210120</p>	<p>(Ø60/100) Condensing Flue Extension</p> <p>$L = 2000 \text{ mm}$</p>	15311660600016 (White)
 <p>0052_03.D210120</p>	<p>(Ø60/100) Condensing</p> <p>45° Elbow</p>	15311660600017 (White)
 <p>0053_03.D210120</p>	<p>(Ø60/100) Condensing</p> <p>90° Elbow $L = 170 \text{ mm}$</p>	15311660600018 (White)
 <p>0054_03.D210120</p>	<p>(Ø60/100) Condensing</p> <p>Vertical Adapter</p> <p>$L = 130 \text{ mm}$</p>	15311660600019 (White)
<p>Flat Roof Outlet Part</p> <p>15311660600124</p>  <p>0055_00.D210120</p>	<p>Pitched Roof Outlet Tile A = 500 x 500 mm</p> <p>15311660600125</p>  <p>0057_00.D210120</p>	  <p>0057_00.D210120</p>

1.8. TWIN FLUE KITS FOR CONDENSING BOILERS (Ø80/Ø80 MM)

	Product Name	Specification	Product Code
	Ø80 Twin Flue Set	Ø80 mm Flue Terminal = 985 mm Air Terminal = 939 mm High of Twin Flue Adapter = 155 mm	153.11.660.600096
	Ø60- Ø80 Twin Flue Set Adapter	Ø60 mm > Ø80 mm + Ø80 mm High of Twin Flue Adapter H = 155 mm	153.11.660.600102
	Ø80 Condensing Twin Flue Extension Pipe L=500 mm	Ø80 mm; L = 500 mm	153.11.660.600091
	Ø80 Condensing Twin Flue Extension Pipe L=1000 mm	Ø80 mm; L = 1000 mm	153.11.660.600092
	Ø80 Condensing Twin Flue Extension Pipe L=2000 mm	Ø80 mm; L = 2000 mm	153.11.660.600093
	Ø80 Twin Flue Elbow (90°)	Ø80 mm; H= 152 mm	153.11.660.600094
	Ø80 Twin Flue Elbow (45°)	Ø80 mm; L = 117 mm	153.11.660.600095
	Ø80 Interior Wall Rosette	Ø80 x 145 mm	153.11.660.600099
	Ø80 Exterior Wall Rosette	Ø80 x 145 mm	153.11.660.600098
	Ø80 Flue Vertical Outlet Adapter with Condensate Trap	Ø80 mm; L = 145 mm	153.11.660.600100
	Ø80 Vertical Flue Kit	Ø80 mm; L = 861 mm	153.11.660.600097

1.9. PLUME DISPLACEMENT KITS Ø60 MM

	Product Name	Specification	Product Code
 0058_01.D210120	Plume Displacement Terminal Kit	With 1 m Extension Pipe, Elbow(87°), Plume Terminal and Bracket	15311660600031
 0059_01.D210120	Plume Displacement Kit Elbow	87°	15311660600032
 0060_01.D210120	Plume Displacement Kit Elbow	45°	15311660600033
 0061_01.D210120	Plume Terminal	87°	15311660600034
 0062_01.D210120	Flue Pipe Support Bracket		15311660600035
 0063_01.D210120	Plume Displacement Kit Extension 1000 mm		15311660600036

1.10. RECOMMENDATIONS OF PLUME KIT INSTALLATION

NOTE: Due to the nature of the boiler a plume of water vapour will be discharged from the flue. This should be taken into account when siting the flue terminal.

1. The following guidelines indicate the general requirements for siting balanced flue terminals. For GB recommendations are given in BS 5440 Pt 1. For IE recommendations are given in the current edition of I.S. 813 "Domestic Gas Installations".
2. If the terminal discharges onto a pathway or passageway, check that combustion products will not cause a nuisance and that the terminal will not obstruct the passageway.
3. If a terminal is less than 2 metres above a balcony, above ground or above a flat roof to which people have access, then a suitable terminal guard must be provided.

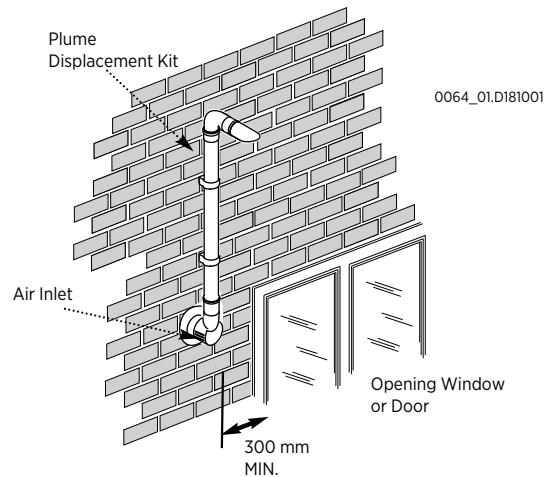


Figure 46 Installation Position of Plume Displacement Set to Window or Door

IMPORTANT:
• The terminal position must ensure the safe and nuisance - free dispersal of combustion products.

IMPORTANT: If fitting a Plume Displacement Flue Kit, the air inlet must be a minimum of 300 mm from any opening windows or doors.

4. FAULT FINDING & SOLUTIONS



INFORMATION

Error Code	Description of the Error	Malfunction	Probable Cause	Solution(s)
E 01	Intervention of exhaust Thermostat	Boiler does not work, E01 error code flashing on the screen	Flue Sensor faulty	1-) Call for authorized service 2-) Check probe resistance if it's out of tolerance replace NTC 3-) Check cabling and connectors between double NTC and board 4-) Reset & Restart boiler
E 02	Low pressure in the CH system	Boiler does not work, E02 error code flashing on the screen	Water pressure in the boiler is too low Tsp. Parameter wrongly settled"	1-) Fill the boiler to a pressure of 1.0 – 1.5 bar cold 2-) Check the pressure on the LCD and the manual pressure gauge. 3-) If problem persist call for authorized service 4-) Check Tsp. parameter P44 as default value for boiler 5-) Reset & Restart boiler
E 03	High water pressure in the system	Boiler does not work, E03 error code flashing on the screen	High Water pressure in the boiler higher than > 2,8 bar	1-) Drain the boiler water until 1,0 -1,5 bar cold 2-) Check if the system pressure 1,0 - 1,5 bar from the manometer located right & bottom of the boiler 3-) If problem persist call authorized service 4-) Check expansion vessel preset charge, should be 0.75 bar.
E 04	DHW sensor faulty	Boiler does not work on DHW mode but still work on Central heating mode, E04 error code flashing on the screen	Domestic heating water temperature sensor faulty	1-) Call for authorized service 2-) Check intermittent contacts or open contacts on harness carefully 3-) Check DHW sensor resistance if it's out of tolerance replace NTC 4-) Check cabling and connectors between double NTC and board 5-) Reset & Restart boiler
E 05	Central heating FLOW temperature sensor faulty	Boiler does not work, E05 error code flashing on the screen	Central heating FLOW temperature sensor faulty	1-) Call for authorized service 2-) Check intermittent contacts or open contacts on harness carefully 3-) Check Central heating temperature sensor resistance if it's out of tolerance replace NTC 4-) Check cabling and connectors between double NTC and board 5-) Reset & Restart boiler
E 06	No ignition	Boiler does not work, E06 error code flashing on the screen	Gas supply failure	1-) RESET boiler - check if problem resolved 2-) Check if other gas devices if they are working 3-) Check if main gas supply valve is open or not 4-) Check if boiler gas supply valve below the boiler is open or not 5-) RESET boiler check if problem resolved 6-) Call for authorized service 7-) Check gas supply pressure must be 17-20 Mbar. Gas pressure must be in between on this value while boiler on operational. 8-) Check earth connector between PCB and earth connector 9-) Check the flue is correct 10-) Check any problems on the ignition electrode, (like condensation, rust etc.), and control positioning of the electrode, if electrode position is wrong calibrate electrode. 11-) Check burner is clean if not clean it with plastic brush 12-) Check for condensation on the cabling AND/OR on board 13-) Check earth connection between board and electrode 14-) Check if electrode ignites directly on burner or not. If there is current leak replace electrode cable 15-) Check PCB and replace if required 16-) Check gas valve and replace if required
E 07	Safety thermostat intervention	Boiler does not work E07 error code flashing on the screen	Lack of water on the system Pump blockage Pump failure Pump harness Installation blockage	1-) RESET boiler first to check if problem is resolved 2-) Check boiler central heating valves are open if they are closed open all of the valves 3-) Check all radiator valves are open if they are closed open the valves—a minimum 3 meters ?? of radiator must be open 4-) RESET boiler and check if problem resolved 5-) Call for authorized service 6-) Check Pump operation and if the pump circulation through the heat exchanger is sufficient 7-) Check intermittent contacts on harness carefully. Check the pump and PWM cable, pump main supply connector, pump main connector, measure voltage from connectors 8-) Check if there is air in the heat exchanger or system, remove air if any by activating the Deaeration mode 9-) Check heat exchanger water path 10-) Reset & restart boiler

Error Code	Description of the Error	Malfunction	Probable Cause	Solution(s)
E 08	Flame circuit failure	False flame signal from combustion or electrode	Aging or rust on the electrode Electrode position Cabling disconnections Water blockage on syphon Electronic board	1-) Call for authorized service 2-) Check any problems on the ionization electrode, (like condensation, rust etc.), and control positioning of the electrode, if electrode position wrong calibrate electrode 3-) Check for condensation on the cabling AND/OR on board 4-) Check earth connection between board and electrode 5-) Check electrode cabling between board and electrode 6-) Check syphoned against ??? water blockage 7-) Perform Auto calibration - if fault persists replace board, but use original service key from the board dismantled to keep original parameters and calibration points. perform calibration Attention: ??? Missing text??
E 09	No water circulation in the system	Boiler does not work E09 error code flashing on the screen	Lack of water on the system Pump blockage Pump failure Pump harness Installation blockage	1-) RESET boiler and check if problem resolved 2-) Check boiler central heating valves are open if they are closed open all valves 3-) Check all radiator valves are open if they are closed open of the valves— a minimum 3 radiators must be open 4-) RESET boiler and check if ok 6-) Check Pump operation to check if the pump circulation through the heat exchanger is sufficient 7-) Check intermittent contacts on harness carefully, check pump and PWM cable, pump main supply connector and pump main connector, measure voltage from connectors 8-) Check if there is air in the heat exchanger or system, remove air and activate Deaeration mode 9-) Check heat exchanger water path 10-) Reset & restart boiler
E 10	Central heating temperature RETURN sensor faulty	Boiler does not work E10 error code flashing on the screen	Central heating RETURN temperature sensor faulty	1-) Call for authorized service 2-) Check intermittent contacts or open contacts on harness carefully 3-) Check RETURN Central heating temperature sensor resistance according to Section 2.28 if it's out of tolerance replace NTC 4-) Check cabling and connectors between RETURN NTC and board 5-) Reset & restart boiler
E 11	Gas valve modulator disconnected	Boiler does not work E11 error code flashing on the screen	Gas valve harness	1-) Call for authorized service 2-) Check gas valve cabling between board and gas valve
E 12	DHW temperature Probe, in storage tank mode, fault	Boiler does not work E12 error code flashing on the screen	Domestic heating water temperature sensor in storage tank faulty	1-) Check intermittent contacts or open contacts on harness carefully 2-) Check Domestic heating (hot?) water temperature sensor resistance 3-) Check cabling and connectors between NTC and board 4-) Reset & restart boiler
E 13	Exhaust temperature probe over-temperature alarm	Boiler does not work, E13 error code flashing on the screen	> Over temperature flue gas outlet value > 105 °C	1-) Call for authorised service at first 2-) Check Pump operation if the pump circulation through the heat exchanger is enough 3-) Check intermittent contacts on harness carefully specially Pump and PWM cable 4-) Check if there is air on the heat exchanger, remove air 5-) Check heat exchanger water path against clogging 6-) Installation water path against clogging 7-) Reset & Restart boiler
E 14	Exhaust (FLUE) temperature probe fault	Boiler does not work, E14 error code flashing on the screen	> Central heating FLUE temperature sensor faulty	1-) Call for authorised service at first 2-) Check intermittent contacts or open contacts on harness carefully 3-) Check FLUE temperature sensor resistance if its out of tolerance replace NTC 3-) Check cabling and connectors between FLUE NTC and board 4-) Reset & Restart boiler
E 15	Fan failure (feedback/supply)	Boiler does not work, E15 error code flashing on the screen	> Fan harness	1-) Call for authorised service at first 2-) Check intermittent contacts or open contacts on harness carefully on fan main supply, if main supply not connected then fan will not operate and boiler will not ignite 3-) Check intermittent contacts or open contacts on harness carefully on fan PWM connection, if PWM connection not connected then fan will work at %100 capacity 4-) Reset & Restart boiler
E 16	Central heating temperature RETURN sensor faulty	Boiler does not work, E10 error code flashing on the screen	> Central heating RETURN temperature sensor faulty	1-) Call for authorised service at first 2-) Check intermittent contacts or open contacts on harness carefully 3-) Check RETURN Central heating temperature sensor resistance if its out of tolerance replace NTC 4-) Check cabling and connectors between RETURN NTC and board 5-) Reset & Restart boiler
E 17	Temperature difference between FLOW and LIMIT NTC (Double Heating Probe) faulty	FLOW and LIMIT sensor (DOUBLE NTC) malfunction	> FLOW and LIMIT Sensor (double NTC) faulty	1-) Call for authorised service at first 2-) Check CH temperature probe resistance (double CH NTC probe is used as high temperature limit device) if its out of tolerance replace double NTC 3-) Check cabling and connectors between double NTC and board 4-) Reset & Restart boiler

Error Code	Description of the Error	Malfunction	Probable Cause	Solution(s)
E 19	Water flow selection with water flow meter input reading	Lack of domestic heating water on request	Wrong parameters settled on TsP menu	1-) Call for authorised service at first 2-) Only authorised service must adjust TsP Parameter P01=0 with default value
E 20	CH Overtemperature, Temperature Central Heating > TSP 81 value °C	Boiler does not work, E81 error code flashing on the screen	> Lack of water on the system > Pump blockage > Pump failure > Pump harness > Installation blockage	1-) RESET boiler at first check if problem removed 2-) Check boiler central heating valves are open if they are closed open of all 3-) Check all radiator valves are open if they are closed open of all minimum 3 meters of radiator must be open 4-) RESET boiler and check if problem removed 5-) Call for authorised service at first 6-) Check Pump operation if the pump circulation through the heat exchanger is enough 7-) Check intermittent contacts on harness carefully specially Pump and PWM cable and specially pump main supply connector and specially pump main connector, measure voltage from connectors 8-) Check if there is air on the heat exchanger or system, remove air if any to do that activate deaeration mode. 9-) Check heat exchanger water path against clogging 10-) Installation water path against clogging 11-) Reset & Restart boiler
E 21	Delta Temperature Central Heating flow and Return > TSP 82 value °C	Boiler does not work, E21 error code flashing on the screen	> Lack of water on the system > Pump blockage > Pump failure > Pump harness > Installation blockage	1-) RESET boiler at first check if problem removed 2-) Check all radiator valves are open if they are closed open of all minimum 3 meters of radiator must be open 3-) RESET boiler and check if problem removed 4-) Call for authorised service at first 5-) Check Pump operation if the pump circulation through the heat exchanger is enough 6-) Check intermittent contacts on harness carefully specially Pump and PWM cable and specially pump main supply connector and specially pump main connector, measure voltage from connectors 7-) Check if there is air on the heat exchanger or system, remove air if any to do that activate deaeration mode. 8-) Check heat exchanger water path against clogging 9-) Installation water path against clogging 10-) Reset & Restart boiler
E 28	Maximum allowed consecutive lock-out reset reached	Usable RESET number reached.	Too many consecutive lock-out failures (followed by reset) due to other possible causes	1-) Removing power supply reset will be allowed 2-) Check the root cause of Error code to solve 3-) If fault still persists call for authorised service
E 37	Low voltage anomaly	Boiler does not work, E37 error code flashing on the screen	Low voltage < 165 VAC +/- 5% on the supply network operation mode OR During Au-TO calibration mode < 182 VAC +/- 5%	1-) Call for Electrical supply network provider 2-) Error will remove if supply voltage > 170 VAC +/- 5% 3-) If you seen seen this E37 during calibration calibration can not be complete unless supply voltage > 188 VAC +/- 5%
E 40	Wrong network frequency survey	Boiler does not work, E40 error code flashing on the screen	Wrong frequency survey out of tolerance 50 Hz +/- 5% on the supply network	1-) Call for Electrical supply network provider 2-) Error will remove if supply frequency 50 Hz +/- 5%
E 41	Loose of flame more than 6 successive times	Boiler does not work, E41 error code flashing on the screen	> Too many domestic heat water request in short period (1 min) > Low gas pressure	1-) Call for authorised service at first 2-) Check intermittent contacts on harness carefully 3-) Check gas supply pressure must be 20-17 mbar. Gas pressure must be in between on this values while boiler on operational 4-) Check wrong flue OR flue gas blockage 5-) Check recirculation (flue gas leak) from flue gas path to fresh air side, check flue gas sealings specially 6-) Check any problems on the ionisation electrode, (like condensation, rust etc.), and control positioning of the electrode, if electrode position wrong calibrate electrode. 7-) Check if the heat exchanger coils clogged or not 8-) Check for condensation on the cabling AND/OR on board 9-) Check earth connection between board and electrode 10-) Check electrode labeling between board and electrode 11-) Check combustion CO ₂ or O ₂ values on HI and LO mode at sweeper mode. 12-) Perform Au-To calibration. 13-) if not successful. Replace board, but use original service key from the board dismantled to keep original parameters and calibration points. If original service key not used also adjust P15 related to the default value of boiler power and Perform Au-To calibration. 14-) if not successful replace gas valve, and Perform Au-To calibration. Attention: Only authorised service must perform Au-To calibration
E 42	Buttons anomaly	Boiler does not work, E42 error code flashing on the screen	Wrong parameters settled on TsP menu	1-) Call For service 2-) Service must adjust TsP Parameter P67 with default value 3-) Check button pads or switches are functional 4-) if not successful. Replace board, but use original service key from the board dismantled to keep original parameters and calibration points. If original service key not used also adjust P15 related to the default value of boiler power and Perform Au-To calibration. Attention: Only authorised service must perform Au-To calibration

Error Code	Description of the Error	Malfunction	Probable Cause	Solution(s)
E 43	Opentherm communication error	Boiler does not work, E43 error code flashing on the screen after 1 minute of communication error	Opentherm disconnected line	1-) Remove energy from boiler and re energised E43 will be removed and boiler & buttons will get back to functional 2-) Replace the room unit batteries with the fresh ones and reset from room unit 3-) Check cabling between boiler and room thermostat unit and re connect if any disconnection, if connection set up successfully then connection symbol will be activated on the screen 4-) Call for authorised service to re connect opentherm connection
rE 44	Cumulated intermittent ignition without reaching burner ignition.	Boiler does not work, E44 error code flashing on the screen	"> Intermittent contacts on harness > Hammer effect on water net > Too many request from in short time from outside room units or thermostat bridge etc."	1-) Call For service 2-) Check for domestic heating water net this problem generally generated by installation root cause water hammer effect. To eliminate this adjust P26=2 or 3 on TsP Menu 3-) Check intermittent contacts on harness carefully 4-) Check room unit or thermostat bridge against too many request in short time
E 62	Calibration request	Boiler does not work, E62 error code flashing on the screen	"> Calibration not done > Replacing board but not service key from the board dismantled > Service key damaged or disconnected > Updating Software (probable)"	1-) Call For service 2-) Check TsP default values before calibration specially P15, P31, P32, P33 2-) Perform Auto Calibration. Attention: Only authorised service must perform Au-To calibration
E 72	Delta T heating at ignition not occurred	Boiler does not work, E72 error code flashing on the screen	> FLOW OR RETURN Sensor not on position	1-) Call for authorised service at first 2-) Check RETURN and FLOW sensor on position.
E 74	Second CH temperature Probe faulty	Boiler does not work, E74 error code flashing on the screen	> FLOW and LIMIT Sensor (double NTC) faulty	1-) Call for authorised service at first 2-) Check CH temperature probe resistance (double CH NTC probe is used as high temperature limit device) if its out of tolerance replace double NTC 3-) Check cabling and connectors between double NTC and board 4-) Reset & Restart boiler
E 77	Absolute current values reached	Boiler does not work, E77 error code flashing on the screen	> Gas inlet pressure > Aging or rust on the electrode > Recirculation on fluegas path > Blokage on flue or wrong flue > Electrode position > Cabeling disconnections > Combustion calibration > Electronic board > Gas valve failiure	1-) Call for authorised service at first 2-) Check gas supply pressure must be 20-17 mbar. Gas pressure must be in between on this values while boiler on operational 3-) Check wrong flue OR flue gas blockage 4-) Check recirculation (flue gas leak) from flue gas path to fresh air side, check flue gas sealings specially 5-) Check any problems on the ionisation electrode, (like condensation, rust etc.), and control poistioning of the electrode, if electrode poistion wrong calibrate electrode. 6-) Check if the heat exchanger coils clogged or not 7-) Check for condensation on the cabling AND/OR on board 8-) Check earth connection between board and electrode 9-) Check electrode cabling between board and electrode 10-) Check combustion CO ₂ or O ₂ values on HI and LO mode at sweeper mode. 11-) Perform Auto Calibration. 12-) If fault still persists Replace board, but use original service key from the board dismantled to keep original parameters and calibration points. If original service key not used also adjust P15 related to the default value of boiler power and perform Au-To calibration. 13-) If not successfull replace gas valve, and Perform Au-To calibration. Attention: Only authorised service must perform Au-To calibration
E 78	Max regulation current value reached	Boiler does not work, E78 error code flashing on the screen	> Gas inlet pressure > Aging or rust on the electrode > Recirculation on fluegas path > Blokage on flue or wrong flue > Electrode position > Cabeling disconnections > Combustion calibration > Electronic board > Gas valve failiure	1-) Call for authorised service at first 2-) Check gas supply pressure must be 20-17 mbar. Gas pressure must be in between on this values while boiler on operational 3-) Check wrong flue OR flue gas blockage 4-) Check recirculation (flue gas leak) from flue gas path to fresh air side, check flue gas sealings specially 5-) Check any problems on the ionisation electrode, (like condensation, rust etc.), and control poistioning of the electrode, if electrode poistion wrong calibrate electrode. 6-) Check if the heat exchanger coils clogged or not 7-) Check for condensation on the cabling AND/OR on board 8-) Check earth connection between board and electrode 9-) Check electrode cabling between board and electrode 10-) Check combustion CO ₂ or O ₂ values on HI and LO mode at sweeper mode. 11-) Perform Auto Calibration. 12-) If fault still persists Replace board, but use original service key from the board dismantled to keep original parameters and calibration points. If original service key not used also adjust P15 related to the default value of boiler power and perform Au-To calibration. 13-) if not successfull replace valve, and Perform Au-To calibration. Attention: Only authorised service must perform Au-To calibration

Error Code	Description of the Error	Malfunction	Probable Cause	Solution(s)
E 79	Min regulation current value reached	Boiler does not work, E79 error code flashing on the screen	<ul style="list-style-type: none"> > Gas inlet pressure > Aging or rust on the electrode > Recirculation on fluegas path > Blokage on flue or wrong flue > Electrode position > Cabeling disconnections > Combustion calibration > Electronic board > Gas valve failiure 	<p>1-) Call for authorised service at first 2-) Check gas supply pressure must be 20-17 mbar. Gas pressure must be in between on this values while boiler on operational 3-) Check combustion CO₂ or O₂ values on HI and LO mode at sweeper mode. 4-) Check wrong flue OR flue gas blockage 5-) Check recirculation (flue gas leak) from flue gas path to fresh air side, check flue gas sealings specially 6-) Check any problems on the ionisation electrode, (like condensation, rust etc.), and control poistioning of the electrode, if electrode poistion wrong calibrate electrode. 7-) Check if the heat exchanger coils clogged or not 8-) Check for condensation on the cabling AND/OR on board 9-) Check earth connection between board and electrode 10-) Check electrode cabeling between board and electrode 11-) Perform Auto Calibration. 12-) If fault still persists Replace board, but use original service key from the board dismantled to keep original parameters and calibration points. If original service key not used aslo adjust P15 releated to the default value of boiler power and perform Au-To calibration. 13-) if not successfull replace gas valve, and Perform Au-To calibration. Attention: Only authorised service must perform Au-To calibration</p>
E 80	Problem on electronic gas valve driver	<ul style="list-style-type: none"> > Electronic board > Gas valve failiure 	<ul style="list-style-type: none"> > Electronic board > Gas valve failiure 	<p>1-) Call for authorised service at first 2-) Check gas valve cabeling between board and gas valve 3-) If fault still persists Replace board, but use original service key from the board dismantled to keep original parameters and calibration points. If original service key not used aslo adjust P15 releated to the default value of boiler power and perform Au-To calibration. 4-) if not successfull replace gas valve, and Perform Au-To calibration. Attention: Only authorised service must perform Au-To calibration</p>
E 81	Lock-out for combustion problem at starting (1)	Boiler does not work, E81 error code flashing on the screen	<ul style="list-style-type: none"> > Strong flue blokage > Combustion problem > Wrong flue > Gas inlet pressure > Aging or rust on the electrode > Recirculation on fluegas path > Electrode position > Combustion calibration 	<p>1-) Call for authorised service at first 2-) Check wrong flue OR strong flue gas blockage 3-) Check gas supply pressure must be 20-17 mBar. Gas pressure must be in between on this values while boiler on operational 4-) Check recirculation (flue gas leak) from flue gas path to fresh air side, check flue gas sealings specially 5-) Check any problems on the ionisation electrode, (like condensation, rust etc.), and control poistioning of the electrode, if electrode poistion wrong calibrate the electrode. 6-) Check combustion CO₂ or O₂ values on HI and LO mode at sweeper mode. 7-) Perform Auto Calibration. Attention: Only authorised service must perform Au-To calibration</p>
E 82	Lock-out for combustion problem on Lawa / Lawa Plus models	Boiler does not work, E82 error code flashing on the screen	<ul style="list-style-type: none"> > Recirculation on fluegas path > Blokage on flue or wrong flue > Combustion calibration 	<p>1-) If there is strong wind (ie.wind storm) wait until the wind storm stop then RESET the boiler 2-) IF problem persist Call for authorised service 3-) Check wrong flue OR flue gas blockage 4-) Check recirculation (flue gas leak) from flue gas path to fresh air side, check flue gas sealings specially 5-) Activate service man menu and dis activate to remove half power mode 6-) IF problem still persist then perform Auto Calibration. Attention: Only authorised service must perform Au-To calibration</p>
E 83	Temporary bad combustion fault problem on Lawa / Lawa Plus models	Boiler does not work, E83 error code flashing on the screen	<ul style="list-style-type: none"> > Recirculation on fluegas path > Blokage on flue or wrong flue > Combustion calibration 	<p>1-) If there is strong wind (ie.wind storm) wait until the wind storm stop then RESET the boiler 2-) IF problem persist Call for authorised service 3-) Check wrong flue OR flue gas blockage 4-) Check recirculation (flue gas leak) from flue gas path to fresh air side, check flue gas sealings specially 5-) Activate service man menu and dis activate to remove half power mode 6-) IF problem still persist then perform Auto Calibration. Attention: Only authorised service must perform Au-To calibration</p>
E 84	Capacity reduction for detected (supposed) low gas inlet pressure	Boiler does not work, E84 error code flashing on the screen	<ul style="list-style-type: none"> > Gas inlet pressure > Combustion problem 	<p>1-) If there is strong wind (ie.wind storm) wait until the wind storm stop then RESET the boiler 2-) IF problem persist Call for authorised service 3-) Check gas supply pressure must be 20-17 mbar. Gas pressure must be in between on this values while boiler on operational 4-) Check combustion CO₂ or O₂ values on HI and LO mode at sweeper mode. 5-) Perform Auto Calibration, IF combustion values are out of tolerances measured one step before Attention: Only authorised service must perform Au-To calibration</p>
E 87	Problem on electronic gas valve circuit	Boiler does not work, E87 error code flashing on the screen	<ul style="list-style-type: none"> > Cabeling disconnections > Gas valve failiure 	<p>1-) Call for authorised service at first 2-) Check gas valve cabeling between board and gas valve 3-) Measure gas valve coil resistances according to manual if gas valve coils out of tolerance, then replace gas valve, and perform Au-To calibration. Attention: Only authorised service must perform Au-To calibration</p>

Error Code	Description of the Error	Malfunction	Probable Cause	Solution(s)
E 88	Fault of electronic gas valve managing circuit	Boiler does not work, E88 error code flashing on the screen	> Cabeling disconnections > Gas valve failiure	1-) Call for authorised service at first 2-) Check gas valve cabeling between board and gas valve 3-) Measure gas valve coil resistances according to manual if gas valve coils out of tolerance, then replace gas valve 4-) Always perform Au-To calibration. Attention: Only authorised service must perform Au-To calibration
E 89	Problem on combustion feedback signal	Boiler does not work, E89 error code flashing on the screen	> Aging or rust on the electrode > Recirculation on fluegas path > Blokage on flue or wrong flue > Electrode position > Cabeling disconnections > Combustion calibration > Electronic board > Gas valve failiure	1-) Call for authorised service at first 2-) Check wrong flue OR flue gas blockage 3-) Check recirculation (flue gas leak) from flue gas path to fresh air side, check flue gas sealings specially 4-) Check any problems on the ionisation electrode, (like condensation, rust etc.), and control poistioning of the electrode, if electrode poistion wrong calibrate the electrode. 5-) Check for condensation on the cabling AND/OR on board 6-) Check earth connection between board and electrode 7-) Check electrode cabeling between board and electrode 8-) Check combustion CO ₂ or O ₂ values on HI and LO mode at sweeper mode. 9-) Perform Auto Calibration. 10-) if not successfull replace gas valve, and perform Au-To calibration. 11-) If fault still persists Replace board, but use original service key from the board dismantled to keep original parameters and calibration points. If original service key not used aslo adjust P15 releated to the default value of boiler power and perform Au-To calibration. Attention: Only authorised service must perform Au-To calibration
E 90	Unable to regulate combustion	Boiler does not work, E90 error code flashing on the screen	> Aging or rust on the electrode > Recirculation on fluegas path > Blokage on flue or wrong flue > Electrode position > Cabeling disconnections > Combustion calibration > Electronic board > Gas valve failiure	1-) Call for authorised service at first 2-) Check wrong flue OR flue gas blockage 3-) Check recirculation (flue gas leak) from flue gas path to fresh air side, check flue gas sealings specially 4-) Check any problems on the ionisation electrode, (like condensation, rust etc.), and control poistioning of the electrode, if electrode poistion wrong calibrate the electrode. 5-) Check for condensation on the cabling AND/OR on board 6-) Check earth connection between board and electrode 7-) Check electrode cabeling between board and electrode 8-) Check combustion CO ₂ or O ₂ values on HI and LO mode at sweeper mode. 9-) Perform Auto Calibration. 10-) if not successfull replace gas valve, and Perform Au-To calibration. 11-) If fault still persists Replace board, but use original service key from the board dismantled to keep original parameters and calibration points. If original service key not used aslo adjust P15 releated to the default value of boiler power and perform Au-To calibration. Attention: Only authorised service must perform Au-To calibration
E 92	Air compensation active	Boiler does not work, E91 error code flashing on the screen	> Possible wind precence > Aging or rust on the electrode > Recirculation on fluegas path > Blokage on flue or wrong flue > Electrode position > Combustion calibration > Min power adjustment	1-) Call for authorised service at first 2-) Check wrong flue OR flue gas blockage 3-) Check recirculation (flue gas leak) from flue gas path to fresh air side, check flue gas sealings specially 4-) Check any problems on the ionisation electrode, (like condensation, rust etc.), and control poistioning of the electrode, if electrode poistion wrong calibrate the electrode. 5-) Check combustion CO ₂ or O ₂ values on HI and LO mode at sweeper mode. 6-) Perform Auto Calibration. 7-) If boiler place is windy area then increase Minimum power to 5 kw via TsP parameter P10= in between 5 and 7. Attention: Only authorised service must perform Au-To calibration
E 93	Unable to regulate combustion (temporarily)	Boiler does not work, E93 error code flashing on the screen	> Aging or rust on the electrode > Recirculation on fluegas path > Blokage on flue or wrong flue > Electrode position > Combustion calibration > Gas valve failiure > Electronic board	1-) Call for authorised service at first 2-) Check wrong flue OR flue gas blockage 3-) Check recirculation (flue gas leak) from flue gas path to fresh air side, check flue gas sealings specially 4-) Check any problems on the ionisation electrode, (like condensation, rust etc.), and control poistioning of the electrode, if electrode poistion wrong calibrate the electrode. 5-) Check combustion CO ₂ or O ₂ values on HI and LO mode at sweeper mode. 6-) Perform Auto Calibration. 7-) if not successfull replace gas valve, and Perform Au-To calibration. 8-) If fault still persists Replace board, but use original service key from the board dismantled to keep original parameters and calibration points. If original service key not used aslo adjust P15 releated to the default value of boiler power and perform Au-To calibration. Attention: Only authorised service must perform Au-To calibration

Error Code	Description of the Error	Malfunction	Probable Cause	Solution(s)
E 94	Possible low gas pressure or exhaust recirculation	Boiler does not work, E94 error code flashing on the screen	<ul style="list-style-type: none"> > Gas inlet pressure LOW > Recirculation on fluegas path > Blokage on flue or wrong flue > Aging or rust on the electrode > Electrode position > Combustion calibration > Gas valve failiure > Electronic board 	1-) Call for authorised service at first 2-) Check wrong flue OR flue gas blockage 3-) Check recirculation (flue gas leak) from flue gas path to fresh air side, check flue gas sealings specially 4-) Check any problems on the ionisation electrode, (like condensation, rust etc.), and control poistioning of the electrode, if electrode poistion wrong calibrate the electrode. 5-) Check combustion CO ₂ or O ₂ values on HI and LO mode at sweeper mode. 6-) Perform Auto Calibration. 7-) if not successfull replace gas valve, and Perform Au-To calibration. 8-) If fault still persists Replace board, but use original service key from the board dismantled to keep original parameters and calibration points. If original service key not used aslo adjust P15 releated to the default value of boiler power and perform Au-To calibration. Attention: Only authorised service must perform Au-To calibration
E 95	Intermittent combustion value	Boiler does not work, E95 error code flashing on the screen	<ul style="list-style-type: none"> > Harness on electrode and earth > Aging or rust on the electrode > Electrode position > Combustion calibration 	1-) Call for authorised service at first 2-) Check intermittent contacts on harness carefully 3-) Check any problems on the ionisation electrode, (like condensation, rust etc.), and control poistioning of the electrode, if electrode poistion wrong calibrate the electrode. 4-) Check for condensation on the cabling AND/OR on board 5-) Check earth connection between board and electrode 6-) Check electrode cabeling between board and electrode 7-) Check combustion CO ₂ or O ₂ values on HI and LO mode at sweeper mode. 8-) Perform Au-To calibration. Attention: Only authorised service must perform Au-To calibration
E 96	Flue or air suction way blockage	Boiler does not work, E96 error code flashing on the screen	<ul style="list-style-type: none"> > Blokage on flue > Blokage on air suction path 	1-) Call for authorised service at first 2-) Check wrong flue OR flue gas blockage 3-) Check recirculation (flue gas leak) from flue gas path to fresh air side, check flue gas sealings specially 4-) Check venturi inlet if its blocked 5-) Check any blockage between fan and burner 6-) Check combustion CO ₂ or O ₂ values on HI and LO mode at sweeper mode. 7-) Perform Auto Calibration. Attention: Only authorised service must perform Au-To calibration
E 98	SW error, board start-up error fault	Boiler does not work, E98 error code flashing on the screen	<ul style="list-style-type: none"> > Boiler software problem 	1-) Call for authorised service at first 2-) Replace board directly, adjust P15 releated to the default value of boiler power 3-) Perform Au-To calibration. Attention: Only authorised service must perform Au-To calibration
E 99	Generic fault	Boiler does not work, E99 error code flashing on the screen	<ul style="list-style-type: none"> > Boiler electronic hardware problem 	1-) Call for authorised service at first 2-) Replace board directly, adjust P15 releated to the default value of boiler power 3-) Perform Au-To calibration. 4-) if not successfull replace gas valve, and perform Au-To calibration. Attention: Only authorised service must perform Au-To calibration
flashing LCD	Half Power mode on Lawa / Lawa Plus models	Boiler continue to work, flashing screen boiler still operational	<ul style="list-style-type: none"> > Recirculation on fluegas path > Blokage on flue or wrong flue > Combustion calibration > Temporary wind precence 	1-) If there is strong wind (ie.wind storm) wait until the wind storm stop then keep using the boiler as it is 36 or 48 hours boiler try to remove half power mode by it self automatically by increasing power gradually. 2-) IF problem persist after 48 hours Call for authorised service 3-) Check wrong flue OR flue gas blockage 4-) Check recirculation (flue gas leak) from flue gas path to fresh air side, check flue gas sealings specially 5-) Activate service man menu and dis activate to remove half power mode 6-) IF problem still persist then perform Auto Calibration Attention: Only authorised service must perform Au-To calibration

TECHNICAL DATA	Unit	Ewa 20				Ewa 24			
Gas Circuit		NG	NG	LPG	LPG	NG	NG	LPG	LPG
Gas Type		G20	G25	G30	G31	G20	G25	G30	G31
Gas Supply Pressure		20	25	30	37	20	25	30	37
Gas Consumption at Maximum	m ³ /h	2,12	2,58	0,71	0,81	2,38	2,85	0,73	0,92
Gas Consumption at Minimum	m ³ /h	0,36	0,42	0,13	0,14	0,37	0,43	0,11	0,11
Seasonal Space Heating Energy Efficiency Class		A				A			
Seasonal Space Heating Energy Efficiency (η _s)	%	91,2	91,2	90,5	90,5	92	92	92	92
Useful efficiency at rated heat output and high temperature regime(2) (η ₄)	%	87,6	87,6	88,3	88,3	87,6	87,6	87,6	87,6
Useful efficiency at 30% of rated heat output and low temperature regime(1) (η ₁)	%	96,4	96,4	95,5	95,5	97,5	97,5	97,5	97,5
Radiator Circuit		G20	G25	G30	G31	G20	G25	G30	G31
Maximum heat input Q _n	kW	20	20	20	20	24,25	24,25	24,25	24,25
Minimum heat input Q _n	kW	3,5	3,5	3,5	3,5	3,5	3,5	3,5	2,8
Maximum Heat Output P _n (50/30 °C)	kW	21,1	21,1	20,7	20,7	25	25	24,7	25
Minimum Heat Output P _n (50/30 °C)	kW	3,7	3,7	3,6	3,6	3,6	3,6	3,55	2,9
Maximum Heat Output (P _n) (80/60 °C)	kW	19,4	19,4	19,4	19,4	23,7	23,7	23,6	23,7
Minimum Heat Output (P _n) (80/60 °C)	kW	3,4	3,4	3,3	3,3	3,0	3,0	3,2	2,5
Temperature Selection Range (min+max) High Temperature	°C	25 ÷ 80 / 25 ÷ 47							
Temperature Selection Range (min+max) Low Temperature	°C	25 ÷ 80 / 25 ÷ 47							
Operating Pressure (Maximum/Minimum)	bar	3 / 0,5				3 / 0,5			
Expansion Tank Volume	bar	7 / 8				7 / 8			
Pump pressure (at constant flow rate)	mSS	6,2 (700 l/h)				6,2 (700 l/h)			
Maximum Pump Delivery Head (Q = 0 m ³ /h)	mH ₂ O	6,2				6,2			
Max. Pump Flow Rate	m ³ /h	2,3				2,3			
Pump Energy Efficiency Index	EEL	≤ 0,20				≤ 0,20			
Domestic Hot Water Circuit									
Water Heating Energy Efficiency Class		A				A		A	
Water Heating Declared Load Profile		XL				L		XL	
Water Heating Energy Efficiency	%	85				81		84	
Gas Consumption at Maximum	m ³ /h	2,47	2,83	0,73	0,94				
Modulation Rate		15/100	15/100	15/100	15/100	14/100	14/100	14/100	14/100
Maximum DHW Heat Input	kW	23,7	23,7	23,7	23,2	25,8			
Minimum DHW Heat Input	kW	3,5	3,5	3,5	3,5	3,5			
Max. Domestic Hot Water flow rate Minimum / (Maksimum: Δt: 30 °C / Δt: 35 °C)	L/min	1,5 / (11 / 10)				1,5 / (12 / 11)			
DHW Pressure (Minimum / Maksimum)	bar	0,5 / 10				0,5 / 10			
Temperature Adjustment Range	°C	35 - 60				35 - 60			
Electricity Circuit / Protection Index	IP	IPX5D				IPX5D			
Electricity Supply	V	230 V +%10; -%15				230 V +%10; -%15			
Electricity Consumption (Min./Max.)	Watt	57 / 86				55 / 95			
Exhaust Gas Circuit		G20	G25	G30	G31	G20	G25	G30	G31
(80/60 °C) Exhaust gas temperature (Min. / Max.)	°C	55 / 78	55 / 78	54 / 78	54 / 78	69 / 71	65 / 70	57 / 70	60 / 70
(50/30 °C) Exhaust gas temperature (Min. / Max.)	°C	37 / 57	37 / 57	41 / 55	41 / 55	49 / 51	48 / 49	43 / 57	47 / 51
Maximum Exhaust Gas Temperature [Maximum DHW Mode]	°C	78				70			
Weighted Value of NO _x (GCV) (NO _x Class: 6)	mg/kWh	33		38		20	19	42	31
General / Dimensions (H x W X D)		725 x 420 x 288				725 x 420 x 288			
Sound Level	dB (A)	52				52			
Maximum Flue Length (Ø60/100 mm) [Horizontal* / (Vertical*)]	m	10 / 11				10 / 11			
Net Weight / Packed Device Weight	kg	30 / 31,8				/ 33,8			
Type		B ₂₅ , B _{25P} , B ₃₃ , B _{33P} , B ₅₃ , B _{53P} , C ₁₃ , C ₃₃ , C ₄₃ , C ₅₃ , C ₆₃ , C ₈₃ , C ₉₃ , C ₍₁₀₎₃							
(1) Low temperature means for condensing boilers 30 °C, for low temperature boilers 37 °C and for other heaters 50 °C return temperature (at heater inlet).									
(2) High temperature regime means 60 °C return temperature at heater inlet and 80 °C feed temperature at heater outlet.									
* At the maximum flue distance, the flue length should be reduced by 1 meter for every 90° bend and 0.5 meter for every 45° bend.									

All information in the ERP Data Sheet & Product Data Sheet is based on the test results of the SZU Test / BRNO laboratories.

Product Fiche (according to EU regulation No 811/2013 and 814/2013)


Model		Ewa 20		Ewa 24	
Space heating - Temperature application		High / Medium / Low			
Water heating - Declared load profile		XL		L XL	
Seasonal space heating energy efficiency class		A		A A	
Water heating energy efficiency class		A		A A	
Rated heat output (Prated veya Psup)		kW 19		24 24	
Space heating - annual energy consumption		QHE GJ 34,8		42 42	
Water heating - Annual energy consumption		kWh (*) 37		26 37	
		GJ (**) 17		11 18	
Seasonal space heating energy efficiency		% 91,17		92 92	
Water heating energy efficiency		% 85		81 84	
Sound power level L_{WA} indoors		dB 52		52 52	
Option to only operate during low demand periods		-		- -	
Specific precautions for assembly, installation and maintenance		Before any assembly, installation or maintenance the user and installation manual has to be read attentively and to be followed.			

All the data that is included in the product information was determined by applying the specifications of the relevant European directives. Differences to product information listed elsewhere may result in different test conditions. Only the data that is contained in this product information is applicable and valid.

(*) Electricity

(**) Fuel

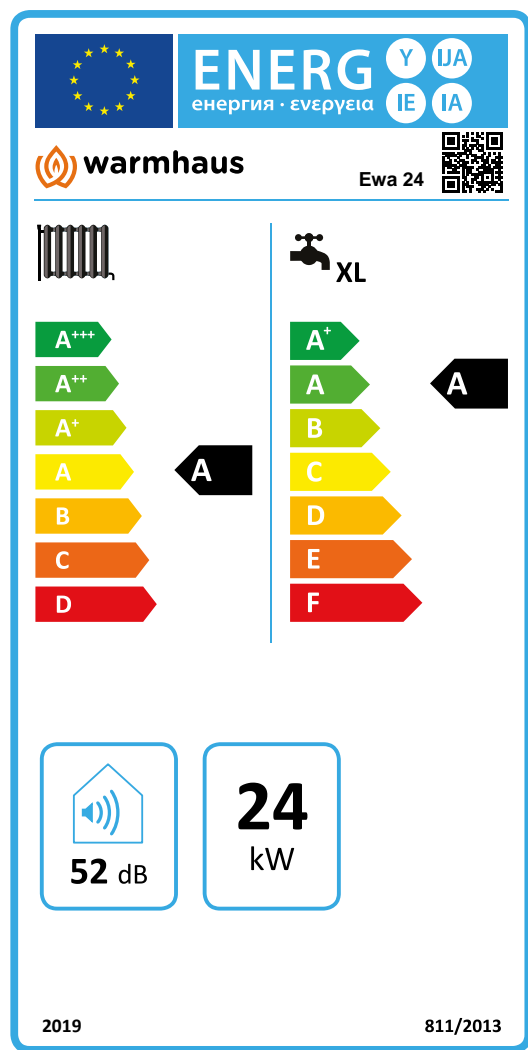
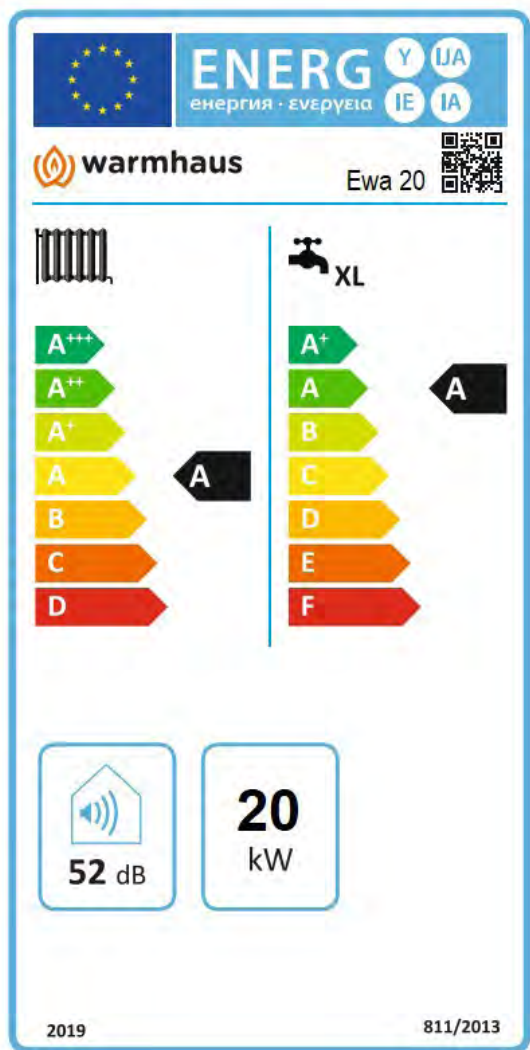
ErP DATA (according to EU regulation No 813/2013 and 814/2013)

Model			Ewa 20		Ewa 24	
Water heating - Declared load profile			XL		L XL	
Rated Heat Output			Prated kW 24		24 24	
Useful heat output at rated heat output and high temperature regime (2)			P ₄ kW 19,4		23,7 23,7	
Useful heat output at 30% of rated heat output and low temperature regime (1)			P ₁ kW 3,72		4,16 4,16	
Seasonal Space Heating Energy Efficiency			η_s % 91		92 92	
Useful efficiency at rated heat output and high temperature regime(2)			η_4 % 87,60		87,57 87,57	
Useful efficiency at 30% of rated heat output and low temperature regime(1)			η_1 % 96,42		97,48 97,48	
Auxiliary Electricity Consumption						
Full load			elmax kW 0,040		0,43 0,43	
Part load			elmin kW 0,01		0,11 0,11	
Standby mode			P _{SB} kW 0,004		0,005 0,005	
Other Items						
Standby heat loss			P _{Stby} kW 0,044		0,057 0,057	
Ignition burner power consumption			P _{ign} kW 0,000		0,000 0,000	
Space heating - annual energy consumption			Q _{HE} GJ 42		42 42	
Sound power level, indoors			L_{WA} dB 52		52 52	
Emissions of nitrogen oxides			NOx mg/kWh 33		20 20	
Domestic Hot Water Parameters						
Declared Load Profile					L XL	
Daily electricity consumption			Q _{elec} kWh 0,167		0,117 0,169	
Annual electricity consumption*			AEC kWh 37		26 37	
Water Heating Energy Efficiency			h _{wh} % 85		81 84	
Daily fuel consumption			Q _{fuel} kWh 22,900		14,809 23,152	
Annual fuel consumption			AFC GJ 17		11 18	
Condensing boiler			Yes		Yes Yes	
Low temperature boiler			Yes		Yes Yes	
Combination boiler			Yes		Yes Yes	
B1 Boiler			No		No No	
Room boiler with combined heat and power			Yes		Yes Yes	
Auxiliary boiler			No		No No	
Brand Name						
Manufacturer address			Warmhaus Isıtma ve Sogutma Sistemleri San. Tic. A.S. Işıktepe OSB Mah. Park Cad. No:10 16140, Nilüfer / Bursa			
Warnings 			All specific precautions for assembly, installation and maintenance are described in the operating and installation manual. Read and follow the operating and installation manual.			
			Read and follow the operating and installation manual regarding assembly, installation, maintenance, removal, recycling and/or disposal.			

(*) for average climatic conditions

(1) Low temperature means for condensing boilers 30 °C, for low temperature boilers 37 °C and for other heaters 50 °C return temperature (at heater inlet).

(2) High temperature regime means 60 °C return temperature at heater inlet and 80 °C feed temperature at heater outlet.



All descriptions and illustrations provided in this document have been carefully prepared but we reserve the right to make changes and improvements in our products which may affect the accuracy of the information contained in this leaflet. All goods are sold subject to our standard Conditions of Sale which are available on request.

**EWA 20
EWA 24**

**CONDENSING COMBI BOILER
INSTALLATION MANUAL**