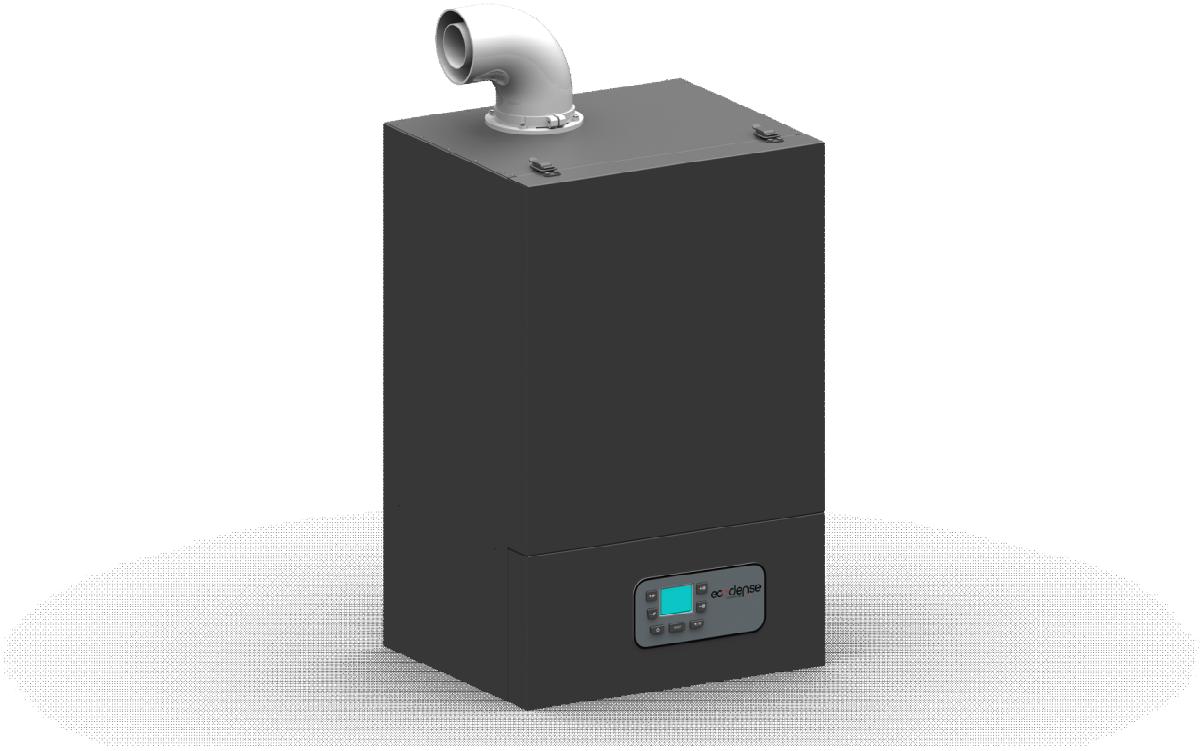
# COMBI BOILER INSTALLATION, OPERATING AND MAINTENANCE MANUAL



## ECODENSE WT-S ONE 35 COMBI BOILER
## ECODENSE WT-S ONE 42 COMBI BOILER
## ECODENSE WT-S ONE 45 COMBI BOILER

**20.10.2023 Rev. 04**

**www.ecodense.com**

**DEAR USER,**

The Combi Boilers are **ECODENSE WT-S ONE 35 COMBI BOILER, ECODENSE WT-S ONE 42 COMBI BOILER** and **ECODENSE WT-S ONE 45 COMBI BOILER** are constructed and manufactured according to the most advance technological inventions and the safety rules. It is easy to use for our customers.

We recommend that you read this manual and safety warnings thoroughly before the use of the device in order to ensure safe, cost effective and environmental-friendly use.

If you encounter any issue that is not explained clearly in this manual or you could not understand, please contact with our service department.

We thank you for choosing **ECODENSE** brand.

This Operating Manual is an integral part of the device and must be maintained in a plastic dossier and hung at a clearly visible place by the device.

**TERMO ISI SİSTEMLERİ SAN.VE TİC.A.Ş.**
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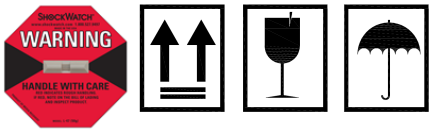
# CONTENTS

# 1. WARNINGS

## 1.1. Warning Symbols and Descriptions

| Symbols | Symbol Descriptions |
|---|---|
|  | Important information and useful hints. |
|  | Warning of danger to life or property. |
|  | Warning of electrical voltage. |
|  | Product handling information. |
|  | "Clean the gas line" warning on gas line. |
|  | Carry in an upright position. Fragile Item. Protect against water. |

**Abbreviations:**

**DHW** :Domestic hot water

**CH** :Central heating

**Pn** :Nominal output

**Pnc** :Condensing output

**Qn** :Nominal heat input

**Qnw** :Nominal domestic hot water heat input

**Hs** :Gross calorific value

## 1.2. General Safety Rules

- All personnel engaged in installation, disassembly, commissioning, operation, control, maintenance and repair should have received the necessary training, qualified and fully read and understood this manual.
- No changes that might damage the safety of the device must be made by persons and/or organizations on the device.
- All operation, commissioning and installation works (except for burning adjustment) should be carried out when the device is not operating and after disconnecting the power supply. Noncompliance with these rules may lead to serious bodily injuries and even death by electrical shocks or uncontrolled flame formation.
- Repairs concerned with safety elements should be carried out only by the manufacturing company.
- The device should never be used by children, mentally handicapped and inexperienced persons.
- Children must not be allowed to play with the device.
- Keep the device away from explosive and flammable materials.

**If you sense gas leakage;**

Installation errors, damage, handling, an unauthorised installation site or similar can cause gas to escape and result in a risk of poisoning and explosion. If there is smell of gas in the building, proceed as follows:

- Avoid rooms that smell of gas.
- Shut down valves of all gas devices.
- If possible, close the gas isolator cock on the boiler.
- Warn other occupants in the building by calling out or banging on doors or walls.
- Leave the building.
- If possible, open doors and ensure adequate ventilation.
- Do not smoke.
- Do not operate any electrical equipment or do not turn them off if they are working.
- Do not use burner derived tools such as match and lighter.
- Use a telephone outside the building to inform the emergency service department of gas supply company.

**Explosives and highly flammable substances:**

The risk of explosion arises from the flammable mixture of gas and air .Take note of the following:

- Do not use or store explosive or highly flammable substances (e.g. petrol, paper, paint) in the same room as the boiler.

**If you sense flue gas what to do in a emergency;**

Installation errors, damage, handling, an unauthorised installation site or similar can cause flue gas to escape and the result in a risk of poisoning. If there is a smell of flue gas in the building, proceed as follows:

- Open the accessible doors and windows fully and ensure adequate ventilation.
- Switch the boiler OFF.
- Inform a heating specialist company.

**Preventing scalding**

There is a danger of scalding at the hot water draw-off points if the hot water temperatures are greater than **60 °C**. Children and elderly persons are particularly at risk, even at lower temperatures .

- Select the temperature so that nobody at risk.

**Preventing frost damage**

If there is a power cut, or if the room temperature is set too low in individual rooms, it cannot be ruled out that sections of heating installation might be damaged by frost.

- If you are going to be away during a cold period, make sure the heating installation remains in operation and that the rooms are sufficiently heated.

Even if rooms, or the whole dwelling, are not in use for certain periods, the heating must remain in operation.

**Caution !**

- Frost protection and monitoring devices are only active while the boiler is connected up to the power supply. The boiler is connected up the power supply. The boiler must be connected to the power supply. The boiler must be switched on. You can see from symbols in the display that the boiler is switched on.

- Under no circumstances should you add frost protection agents (or other additive, e.g. jointing compounds, corrosion protection agents, etc.) to the heating water without first consulting your qualified skilled tradesman. Otherwise, this could result in damage to seals and diagrams as well as noises during heating mode. **ECODENSE** assumes no liability for this or any consequential damage.

Another way to protect the heating system and the heating system and the boiler from frost is the drain them. In doing so, you must ensure that the heating system and boiler are completely drained.

**If you want to maintain the operation the operation of the boiler during a power cut using an emergency power generator, take note of the following:**

- Make sure technical values of this generator (frequency, voltage, earthing) match those of the power mains.
- Contact your approved heating specialist company for advise on this.

**Changes to the surroundings of the boiler**

You must not make any changes to the surroundings of the boiler:

- Never shut down the safety devices.
- Do not tamper with any of the safety devices.
- Do not make any changes:
  - to the boiler,
  - to the gas, air, water and electricity supply lines,
  - to entire flue system,
  - to the entire condensate drain system,
  - to the expansion relief valve or the drain line and constructional conditions that could affect the operational reliability of the boiler.

## 2. TERMS OF WARRANTY

Main and auxiliary equipment and all components used in **ECODENSE WT-S ONE 35 COMBI BOILER, ECODENSE WT-S ONE 42 COMBI BOILER** and **ECODENSE WT-S ONE 45 COMBI BOILER**, condensing boilers are guaranteed for **2 years** by **TERMO ISI SİSTEMLERİ A.Ş.** starting from the date of commissioning under the maintenance, adjustment, operating conditions and relevant mechanic, chemical and thermal effects explained herein.

Please note that this warranty is only valid if the device(s) is commissioned and maintained by our authorized services.

Our company reserves the right to make any modifications on the product and all instructions thereof for improvement purposes.

### 2.1. Out of Warranty Conditions

- Any damage arising out of or in relation to customers' non-compliance to their responsibilities with regards to installation, commissioning, operation and maintenance,
- Any damage arising out of or in relation to commissioning, repairs and maintenance carried out by unauthorized services,
- Any damage that may occur during transportation or storage of the product,
- Not preserving the product in its original packaging until the installation stage,
- Incorrect and poor electrical connections, Failures due to incorrect voltage applications, frequent repetition of voltage fluctuations,
- Any damage that may occur as a result of incorrect fuel usage or, foreign substances in the fuel used or using of the product without any fuel,
- Any damage that may occur due to foreign particles entered into the product during installation and operation,
- Failures due to incorrect device selection,
- Any damage to unit due to natural disasters,
- Devices without any warranty certificates,
- Warranty certificates without the stamp and signature of the authorized dealer or service,
- Devices with any falsification on the warranty certificate or without an original serial number.
- The risks during transportation of device under the responsibility of customer belong to the customer.
- Presence of misuse faults are indicated in the reports issued by authorized service stations or our authorized agent, dealer, representative or our factory in case of unavailability of authorized service stations.
- Customers may apply consumer protection arbitrator committee with regards to this report and request for an expert report.

## 3. GENERAL CHARACTERISTICS of CONDENSING BOILER

**ECODENSE WT-S ONE 35 COMBI BOILER, ECODENSE WT-S ONE 42 COMBI BOILER** and **ECODENSE WT-S ONE 45 COMBI BOILER** are fully automatic gas fired wall mounted condensing combi boilers. They are room sealed and fan assisted,and will serve central heating and mains fed domestic hot water. They are operated with natural gas or LPG with a very low suction power, and equipped with high-duty, premix condensing control system with micro-processor.

This product was designed for heating water under the boiling temperature at atmospheric pressure. It should be connected to **CH** and **DHW** circuit suitable for its performance and heat output.

The boiler is set to give nominal heat output of : **35 kW for ECODENSE WT-S ONE COMBI BOILER 35, 41 kW for ECODENSE WT-S ONE COMBI BOILER 42, 44 kW for WT-S ONE 45.**

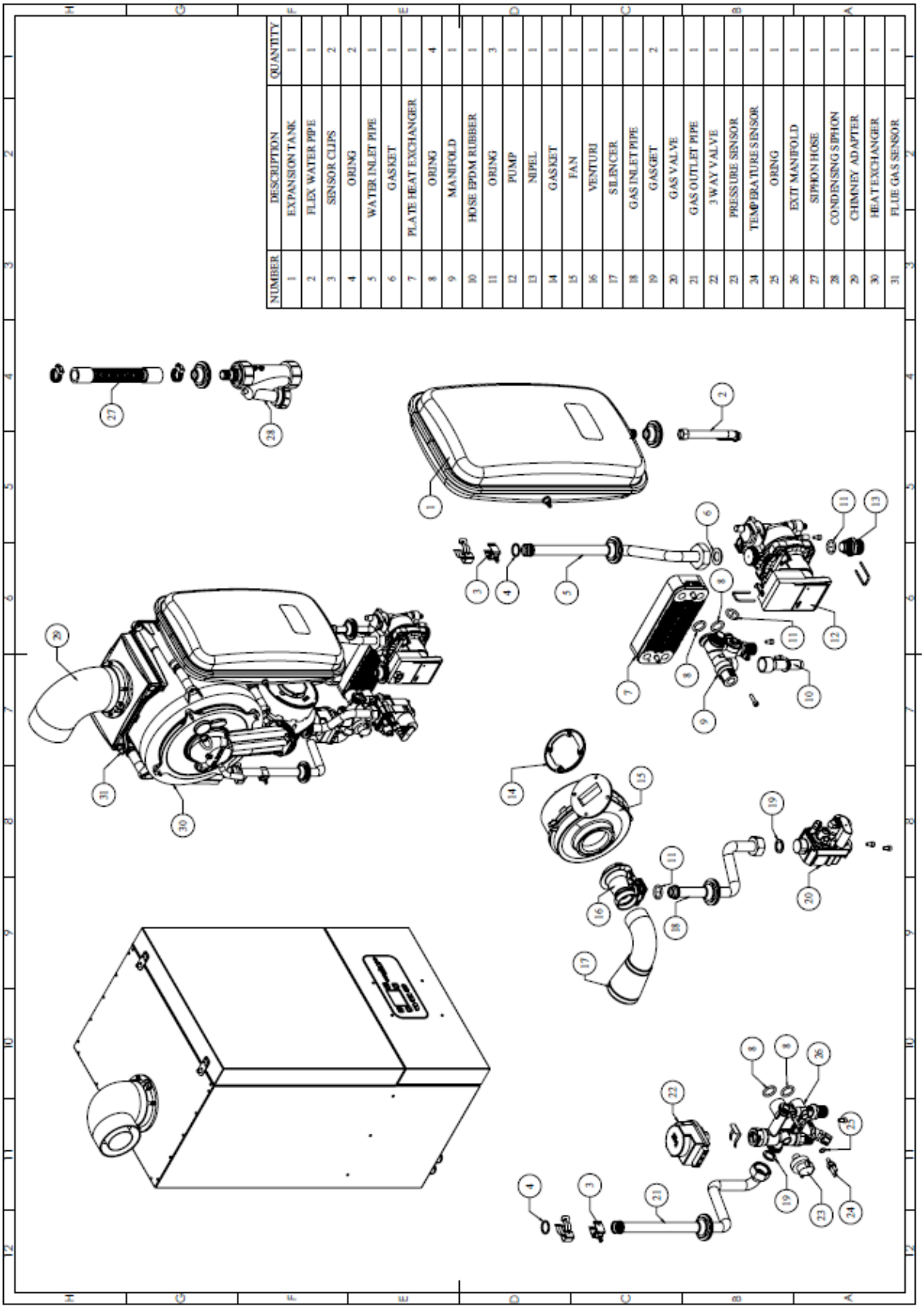
The boiler is intended to be installed in residential/domestic environments on a governed meter supply only. The boiler is suitable for use only on fully pumped sealed heating systems. Priority is given to domestic hot water.

The boiler must be installed with one of the purpose designed flues such as one of the standard horizontal concentric flue kits .

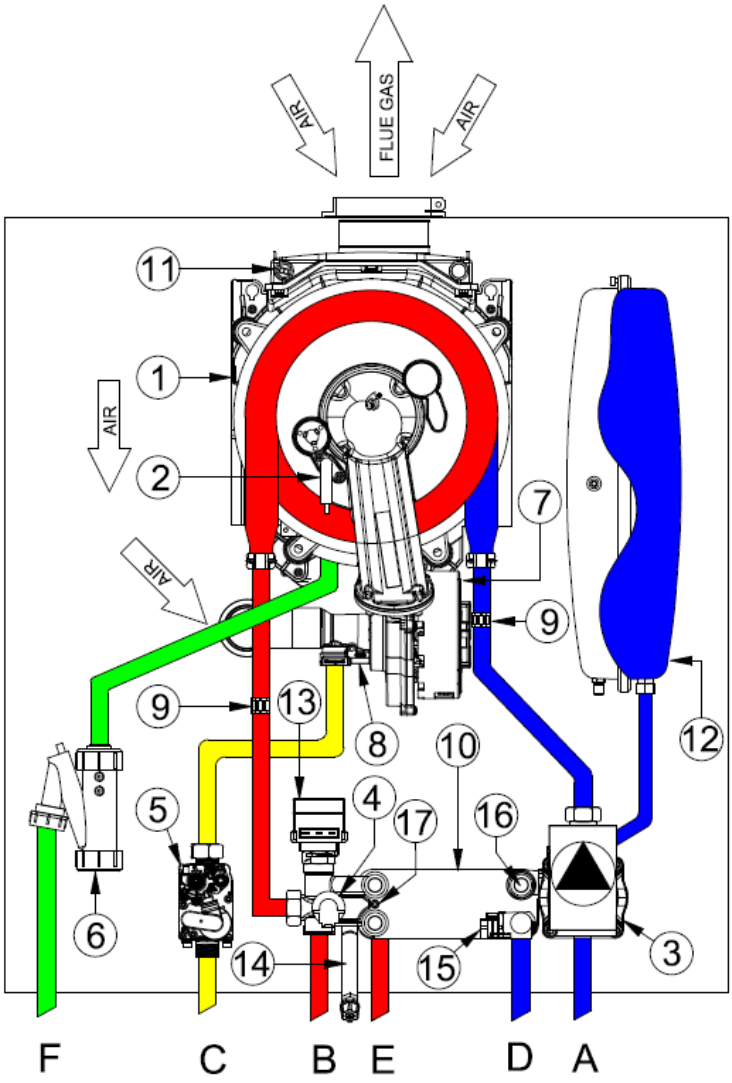
The boiler is factory set for use on Natural Gas (**G20**).

## 4. PARTS

| NUMBER | DESCRIPTION | QUANTITY |
|---|---|---|
| 1 | EXPANSION TANK | 1 |
| 2 | FLEX WATER PIPE | 1 |
| 3 | SENSOR CLIPS | 2 |
| 4 | ORING | 2 |
| 5 | WATER INLET PIPE | 1 |
| 6 | GASKET | 1 |
| 7 | PLATE HEAT EXCHANGER | 1 |
| 8 | ORING | 4 |
| 9 | MANIFOLD | 1 |
| 10 | HOSE EPDM RUBBER | 1 |
| 11 | ORING | 3 |
| 12 | PUMP | 1 |
| 13 | NIPEL | 1 |
| 14 | GASKET | 1 |
| 15 | FAN | 1 |
| 16 | VENTURI | 1 |
| 17 | SILENCER | 1 |
| 18 | GAS INLET PIPE | 1 |
| 19 | GASGET | 2 |
| 20 | GAS VALVE | 1 |
| 21 | GAS OUTLET PIPE | 1 |
| 22 | 3 WAY VALVE | 1 |
| 23 | PRESSURE SENSOR | 1 |
| 24 | TEMPERATURE SENSOR | 1 |
| 25 | ORING | 1 |
| 26 | EXIT MANIFOLD | 1 |
| 27 | SIPHON HOSE | 1 |
| 28 | CONDENSING SIPHON | 1 |
| 29 | CHIMNEY ADAPTER | 1 |
| 30 | HEAT EXCHANGER | 1 |
| 31 | FLUE GAS SENSOR | 1 |



## 5. BOILER HYDRAULIC SCHEMA




### CONNECTIONS

A - CH Inlet
B - CH Outlet
C - Gas Inlet
D - Domestic Water Inlet
E - Domestic Water Outlet
F - Condensing Water Outlet

### MAIN PARTS

1 - Stainless Steel Heat Exchanger
2 - Ignition / Ionization Electrode
3 - Pump
4 - Pressure Sensor
5 - Gas Valve
6 - Condensing Siphon
7 - Fan
8 - Venturi
9 - Inlet / Outlet Temperature Sensor
10- Plate Heat Exchanger
11- Flue Gas Sensor
12- Expansion Tank
13- 3 Way Valve
14- Water Filling Valve
15- Flow Sensor
16- Safety Valve
17- Domestic Water Temperature Sensor

## 6. TECHNICAL SPECIFICATIONS

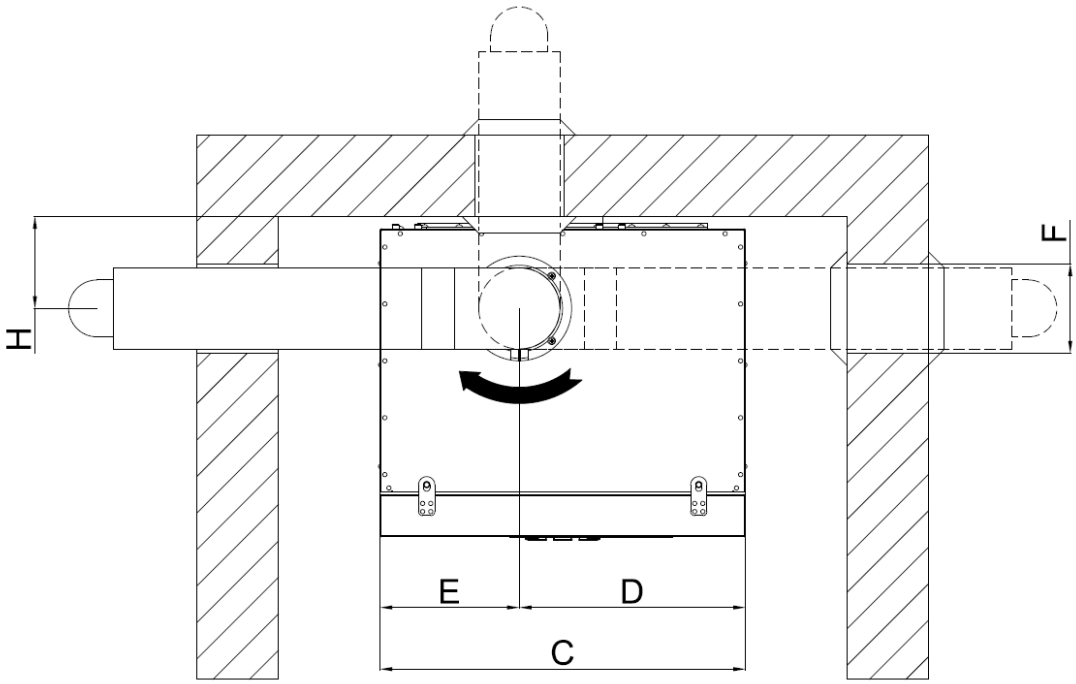
# ECODENSE *WT - S ONE KOMBI SERIES* CONDENSING BOILER

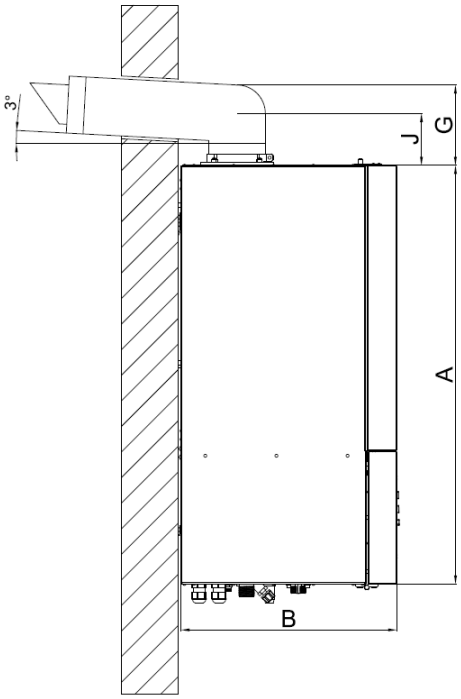
| TECHNICAL SPECIFICATIONS | Unit | WT-S ONE 35 KOMBI | WT-S ONE 42 KOMBI | WT-S ONE 45 KOMBI |
|---|---|---|---|---|
| **Thermal Capacity** | | | | |
| Maximum Heating Capacity | kW | 34,8 | 41,4 | 43,8 |
| Minimum Heating Capacity | kW | 6,9 | 8,3 | 8,72 |
| Maximum Heat Output (80°C / 60°C) | kW | 34,41 | 40,8 | 43,3 |
| Minimum Heat Output (80°C / 60°C) | kW | 6,86 | 8,2 | 8,61 |
| Maximum Heat Output (50°C / 30°C) | kW | 36,87 | 43,57 | 45,9 |
| Minimum Heat Output (50°C / 30°C) | kW | 7,27 | 8,65 | 9,05 |
| **Thermal Efficiency** | | | | |
| Efficiency @ Pmax. (80°C / 60°C) | % | 99,4 | 98,8 | 98,7 |
| Efficiency @ Pmin. (80°C / 60°C) | % | 98,9 | 98,6 | 98,9 |
| Efficiency @ Pmax. (50°C / 30°C) | % | 106 | 105,5 | 105,1 |
| Efficiency @ Pmin. (50°C / 30°C) | % | 105,9 | 105,2 | 104,8 |
| Efficiency @ %30 (30°C) | % | 107,1 | 106,4 | 106,1 |
| **Central Heating Circuit** | | | | |
| Maximum Operating Temperature | °C | 85 | 85 | 85 |
| Maximum Operating Pressure | bar | 3 | 3 | 3 |
| Minimum Operating Pressure | bar | 0,8 | 0,8 | 0,8 |
| **Gas Specifications** | | | | |
| Gas Type | - | G20-G31 | G20-G31 | G20-G31 |
| Gas Inlet Pressure (G20) | mbar | 20 | 20 | 20 |
| Gas Inlet Pressure (G31) | mbar | 37 | 37 | 37 |
| **Combustion Data** | | | | |
| Maximum Flue Gas Temperature (50°C / 30°C) | °C | 40 | 40 | 42 |
| Maximum Flue Gas Temperature (80°C / 60°C) | °C | 65 | 78 | 81 |
| Maximum Flue Gas Flow Rate | kg/s | 14,3 | 19,4 | 20,6 |
| **Electrical Specifications** | | | | |
| Electrical Supply | V / Hz | 230/50 | 230/50 | 230/50 |
| Protection Class | IP | X4D | X4D | X4D |
| Energy Consumption | W | 145 | 145 | 145 |
| Fuse Current | A | 2 | 2 | 2 |
| **Circuit Specifications** | | | | |
| Condensation Connection Pipe Diameter | Ø | 12 | 12 | 12 |
| Gas Connection Diameter | Ø | 3/4" | 3/4" | 3/4" |
| Central Heating Circuit Inlet/Outlet Diameter | Ø | 3/4" | 3/4" | 3/4" |
| Domestic Hot Water Inlet/Outlet Diameter | Ø | 1/2" | 1/2" | 1/2" |
| **General Specifications** | | | | |
| Chimney Type | | B23, C13, C33 | | |
| Chimney Diameter (Ø) | mm | 60/100 | 60/100 | 60/100 |
| Net Weight | kg | 50 | 53 | 53 |
| NOx Emission Class (EN 15502-1+A1) | - | 6 | 6 | 6 |
| G 20 Natural , G 31 LPG | | | | |

## 6.1. Noise Level

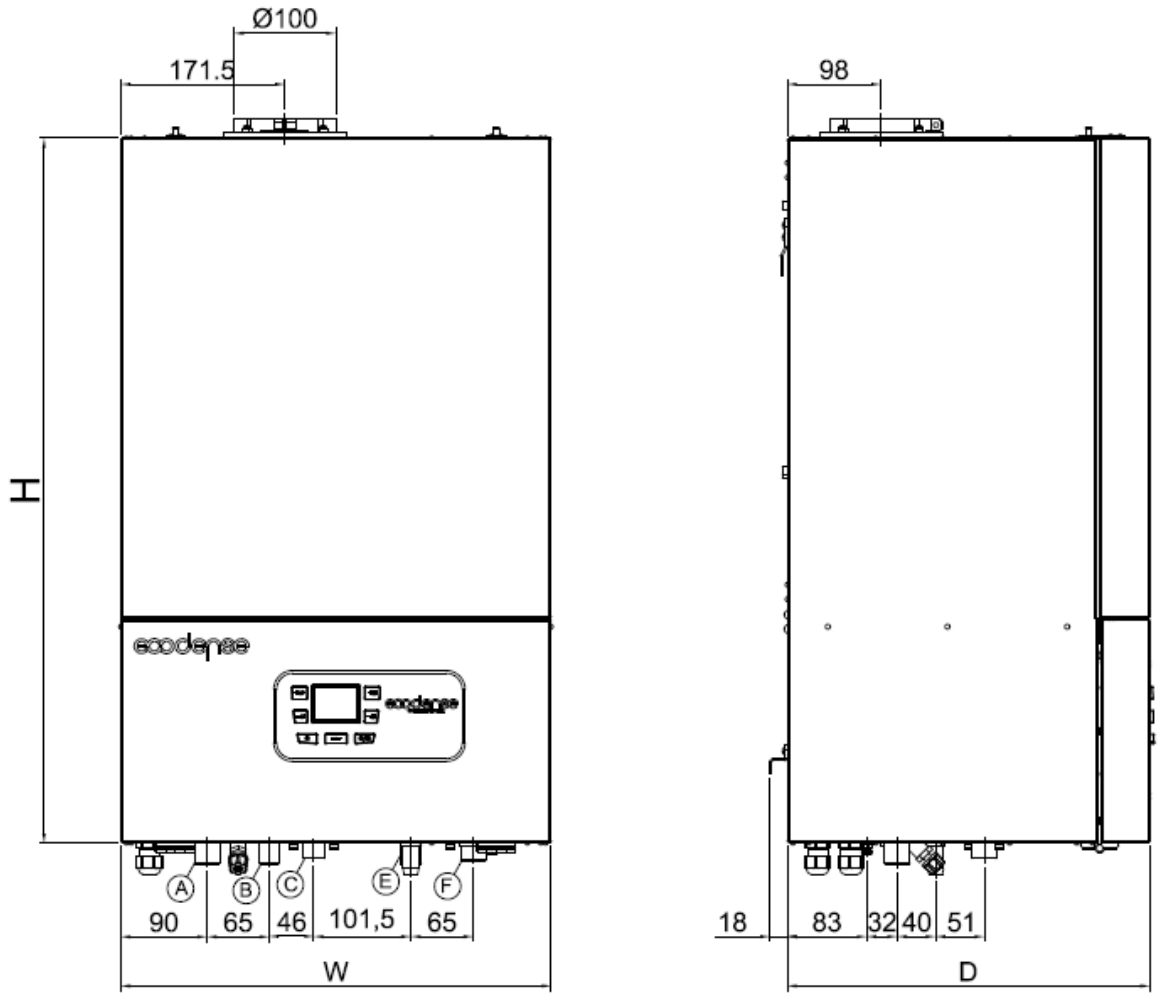
When the combi boiler is in operation, the maximum noise level released is < 70 dBA. The noise level value corresponds to the value measured with semi-anekoik (semi-unreflecting acoustic) room testing according to the product standards at the time of expansion of the smoke release system, when the combi boiler operates at the maximum heating power.

## 6.2. Combi Boiler External Dimensions and Connections




| | |
|---|---|
| A | 740 mm |
| B | 380 mm |
| C | 450 mm |
| D | 280 mm |
| E | 170 mm |
| F | 100 mm |
| G | 170 mm |
| H | 100 mm |
| J | 120 mm |




| MODEL | W (mm) | H (mm) | D (mm) | A (mm) | B (mm) | C (mm) | E (mm) | F (mm) |
|---|---|---|---|---|---|---|---|---|
| ECODENSE WT-S ONE 35 COMBI BOILER | 450 | 735 | 380 | G 3/4" | G 1/2" | G 3/4" | G 1/2" | G 3/4" |
| ECODENSE WT-S ONE 42 COMBI BOILER | 450 | 735 | 380 | G 3/4" | G 1/2" | G 3/4" | G 1/2" | G 3/4" |
| ECODENSE WT-S ONE 45 COMBI BOILER | 450 | 735 | 380 | G 3/4" | G 1/2" | G 3/4" | G 1/2" | G 3/4" |

## 7. COMBI BOILER HANDLING INFORMATION

- Prevent strong impacts on top of the product and vibration while handling the product.
- Do not leave the product in wet environment.


| Combi Boiler | X x Y x Z (mm) | Weight (kg) |
|---|---|---|
| WT-S ONE 35 COMBI BOILER | 460x400x800 | 44 |
| WT-S ONE 42 COMBI BOILER | 460x400x800 | 44 |
| WT-S ONE 45 COMBI BOILER | 460x400x800 | 44 |

⚠ Device must be shipped in original packaging!

# 8. INSTALLATION

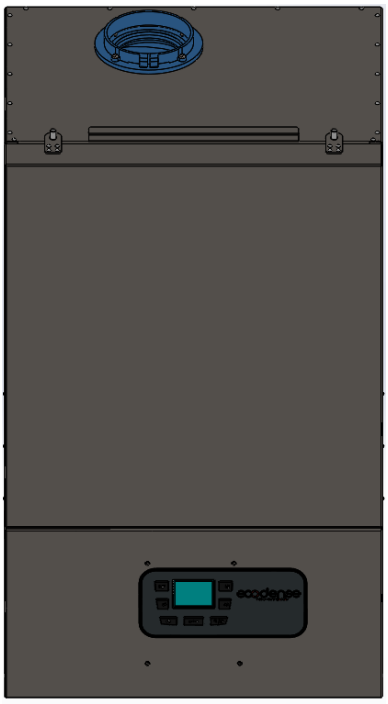
## 8.1. General Controls

- The heating capacity of the device should be determined based on the heat requirement calculate
- All parts necessary for the system must be available.
- Make sure that all protection and safety devices are available.
- In order to prevent accumulation of dirt in the system, prevention of boiler operation and damage given to the boiler by clogging, a filter must be mounted onto the system's return pipe.
- The device has a frost protection system to prevent the device from freezing when the water temperature of the installation falls below +4 ˚C.
- Ensure that the gas connections are made with pipes confirming to the standards, and that there is no leakage on these connections.
- Ensure that the electric connections are proper.

### Electrical Connection

Perform electrical connections according to the diagram provided. Follow general security rules during installation of electric wiring and making connections. Connect the earthing terminal in electric panel to the earthing installation.

Do not forget to check the gasket and tighten the flange during chimney installation.



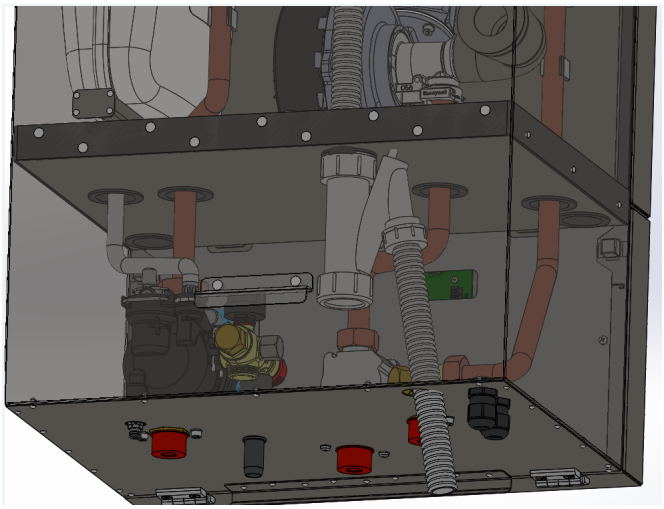
## 8.2. Assembly of Condensing Fluid Drain

1. Ensure that siphon is fully filled with water before activation of boiler.

2. Drain direction must allow flow of condensing fluid. Drain pipe must be planned to prevent any clogging due to external effect like frost, etc. Drain parts must be plastic.

3. Boiler condensing outlet must be at least 13 mm.

Condensing drain must not be changed or clogged after assembly. Clogging of condensing drain causes the boiler to automatically shut down or causes the siphon to overflow. It will be helpful to pour some hot water to the open parts of drain if there is a possibility of frost. Drain must be open at all times to ensure proper functioning of the boiler.



Condensing Water Syphon should be cleaned from dust and dirts in every 3 months and also beginning of every winter.

## 9. ECODENSE CONTROL INSTRUCTIONS BEFORE START-UP

1. Ensure that boiler are mounted on fixed, firm and robust wall. Use metal hangers on improper walls.

2. Check the boiler is fed through a 6A fuse.

3. Closed circuit maximum operation pressure is 3 bars. It is suggested that accumulator tank must be used on CH circuit for safety.

4. Safety valve fixed to 3 bars must be used.

5. Ensure that stack connections, are at right radius and connected as leak proof.

6. PWM pump has its automatic air vent. It is suggested that air vent must be used on CH circuit for safety.

7. Hydraulic circuit pressure is displayed on control card display. Check the system water pressure on the display.

8. Control if the condensing fluid siphon is made of plastic, isolated against frost, at correct radius and connected to condensing fluid drain with an angle. It should not be connected to rain drain.

9. Ensure that gas pressure complies with boiler operation instructions. In situations where gas pressure is higher than required pressure, a regulator must be used.

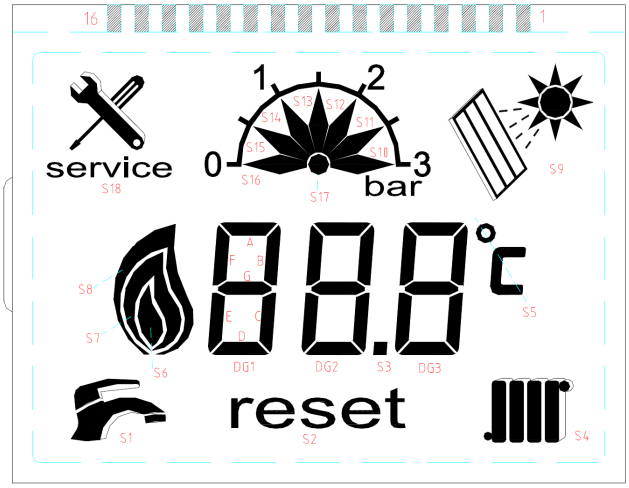
10. Ensure that sensors on boiler feed and circuit (outgoing-return temperature, ambient temperature, boiler temperature sensors, room thermostats and the other control kit ) are wired correctly.

On first start-up if there is deficiency in the system detected by ECODENSE authorized service technicians, technicians are not allowed to activate the system.

## 9.1. Control Panel Description


**K1** CH setpoint adjustment (+)
**K2** CH setpoint adjustment (-)
**K3** OFF / Info mode selection
**K4** RESET mode
**K5** DHW / CH+DHW modes enabling
**K6** DHW setpoint adjustment (-)
**K7** DHW setpoint adjustment (+)

**Display Description**




**S1** DHW mode
**S2** Reset request
**S4** CH mode
**S5** Centigrade degree
**S6-S7-S8** Burner power indication
**S9** Solar mode
**S10 .. S17** Water pressure level indication
**S18** Service request

## 9.2. Operating Principle

The boiler can be set in 2 operations modes:-‘Summer’ (**DHW** only), ’Winter’ (**CH & DHW**) ,

### 9.2.1. Winter Mode (CH & DHW)

1. Press the **ON/OFF** button (**K5**). Radiator and tap symbol will be displayed on the screen.

2. CH water set temperature will be displayed on the screen when DHW is not needed.CH heating set temperature is increases by pressing (**K1**) button, and decreases by pressing (**K2**) button.CH set temperature is displayed on the screen when pressed to these buttons. Flame symbol (🔥) is displayed on the screen when combi is started-up. The radiator symbol on the screen will be flashing when combi works at CH mode.

3. DHW set temperature is increased by pressing to (**K7**) button, and decreased by pressing (**K6**) button. DHW set temperature is displayed on the screen when pressed to these buttons. When the DHW is needed, combi is worked on DHW mode and tap symbol will be flashing when combi works at DHW mode. Because of the DHW priority, even if the appliance is operating at CH, combi will switch to when DHW is needed.

### 9.2.2. Summer Mode ( DHW only)

1. Press the **ON/OFF** button (**K5**) until the tap symbol will be displayed on the screen.

2. DHW heating set temperature is increases by pressing (**K**7) button, and decreases by pressing (**K6**) button. DHW set temperature is displayed on the screen when pressed to these buttons. Combi will started at DHW mode when DHW is needed.

## 9.3. Boiler Frost Protection Mode

When water outlet temperature decreased below **5°C**, frost protection function of combi boiler operating system provides that burner starts up and increases water outlet temperature up to **30°C**.

Frost protection mode works under the conditions below:

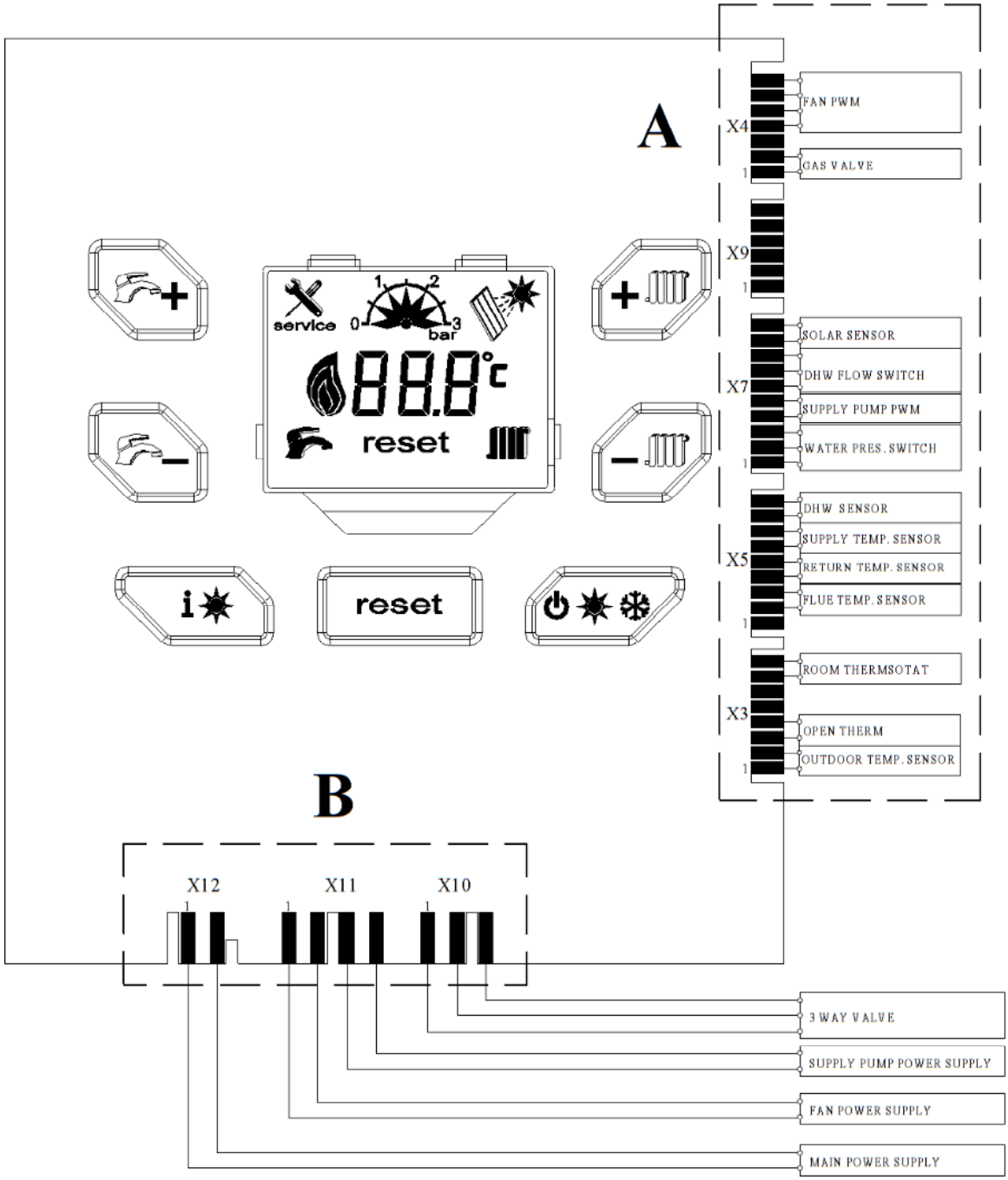
1. Combi Boiler electrical supply should be turned on.

2. Main gas valve on gas circuit should be opened.

3. Hydraulic water pressure should be adjusted properly.

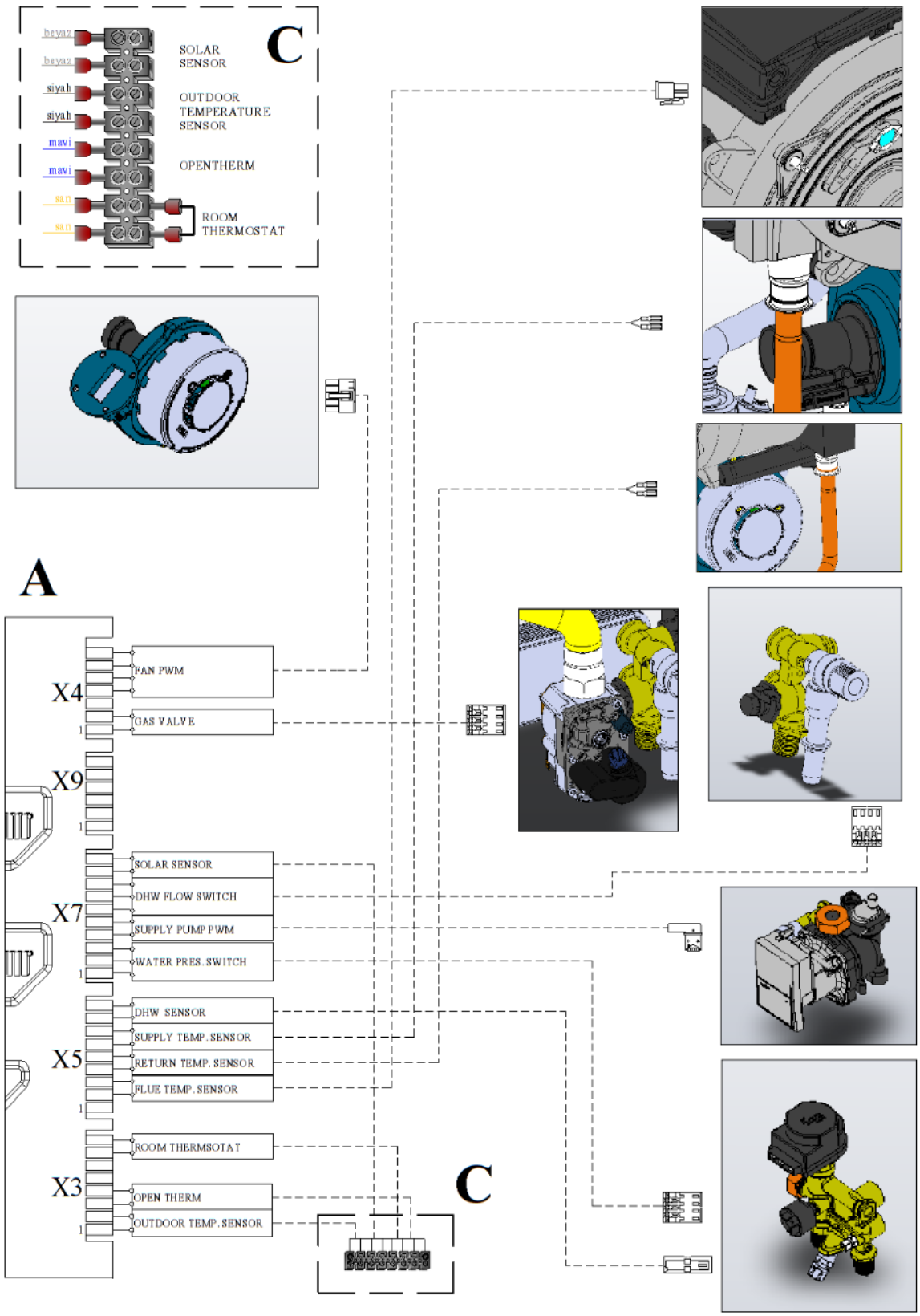
Combi boiler should not be blocked.

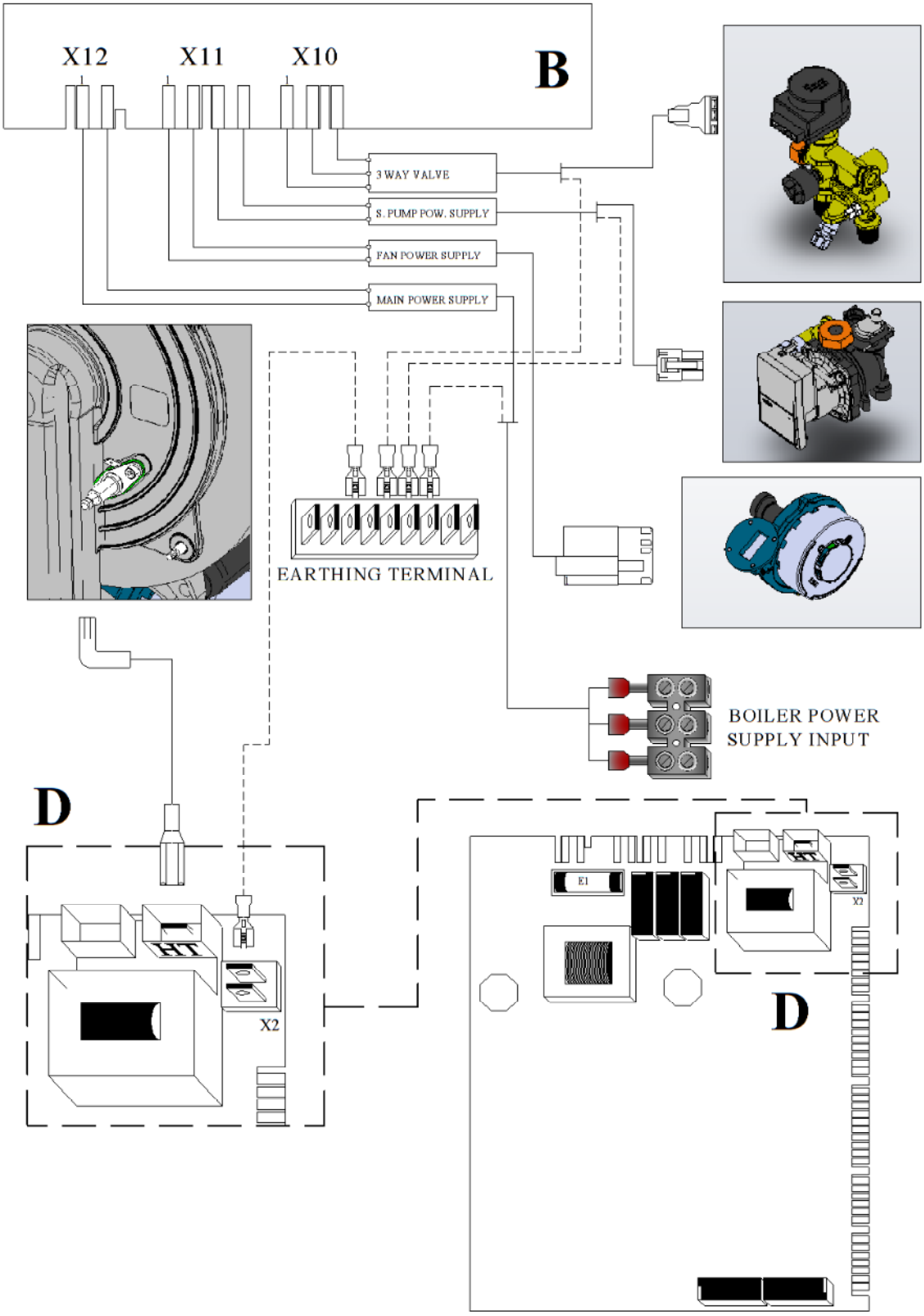
## 10. ELECTRICAL DIAGRAM AND RELATED CONNECTIONS



| TERMINAL | PIN | SIGNAL | EXPLANATION |
|---|---|---|---|
| X2 | 1 | Earth | Earth |
| | 2 | Earth | |
| X3 | 1 | Input | Outdoor Temperature Sensor |
| | 2 | Earth | |
| | 3 | RX-TX | Opentherm |
| | 4 | Earth | |
| | 5 | Input | ---- |
| | 6 | Earth | |
| | 7 | Input | Room Thermostat |
| | 8 | Earth | |
| X4 | 1 | 24VDC | DC Gas Valve |
| | 2 | Earth | |
| | 3 | - | |
| | 4 | PWM | Fan Driver Interface |
| | 5 | 24VDC | |
| | 6 | Tacho | |
| | 7 | GND | |
| X5 | 1 | 24VDC | |
| | 2 | Input | Flue Temperature Sensor |
| | 3 | Earth | |
| | 4 | Input | Return Temperature Sensor |
| | 5 | Earth | |
| | 6 | Input | Supply Temperature Sensor |
| | 7 | Earth | |
| | 8 | Input | DHW Temperature Sensor |
| | 9 | Earth | |
| X7 | 1 | WP Supply | Water Pressure Sensor |
| | 2 | BS Input | |
| | 3 | BS GND | |
| | 4 | PWM Supply | Supply Pump PWM |
| | 5 | PWM Output | |
| | 6 | FS Supply | DHW Flow Switch |
| | 7 | FS Input | |
| | 8 | FS GND | |
| | 9 | Input | Solar Sensor |
| | 10 | Earth | |

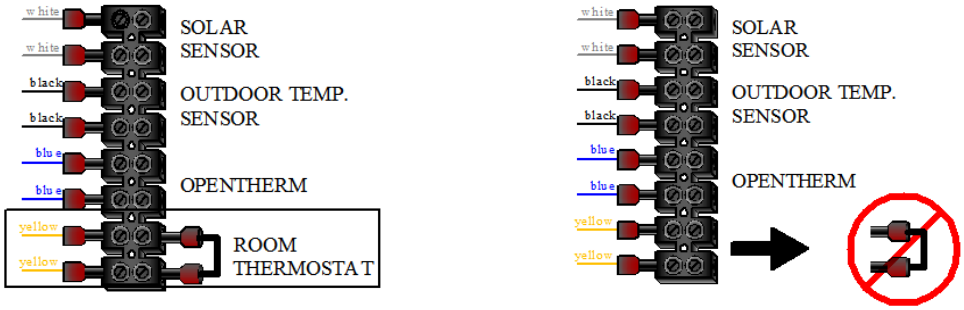
| TERMINAL | PIN | SIGNAL | EXPLANATION |
|---|---|---|---|
| X10 | 1 | CH Supply | 3 Way Valve |
| | 2 | DHW Supply | |
| | 3 | Neutral | |
| X11 | 1 | Phase | Fan Power Supply |
| | 2 | Neutral | |
| | 3 | Phase | Supply Pump Power Supply |
| | 4 | Neutral | |
| X12 | 1 | Neutral | Main Power Supply |
| | 2 | Phase | |
| HT | 1 | HT1 | Ignition Rod |


C
beyaz
beyaz
siyah
siyah
mavi
mavi
sarı
sarı
SOLAR SENSOR
OUTDOOR TEMPERATURE SENSOR
OPENTHERM
ROOM THERMOSTAT
A
X4
FAN PWM
GAS VALVE
X9
X7
SOLAR SENSOR
DHW FLOW SWITCH
SUPPLY PUMP PWM
WATER PRES. SWITCH
X5
DHW SENSOR
SUPPLY TEMP. SENSOR
RETURN TEMP. SENSOR
FLUE TEMP. SENSOR
X3
ROOM THERMSOTAT
OPEN THERM
OUTDOOR TEMP. SENSOR
C

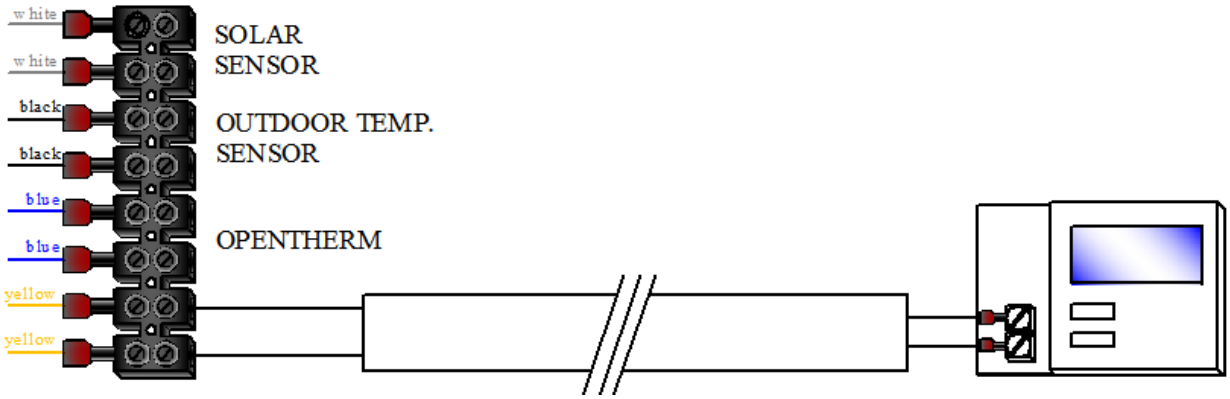

X12
X11
X10
B
3 WAY VALVE
S. PUMP POW. SUPPLY
FAN POWER SUPPLY
MAIN POWER SUPPLY
EARTHING TERMINAL
BOILER POWER
SUPPLY INPUT
D
X2
E1
X2
D

### 10.1. Connection of room thermostat

Perform the connections of the related terminals in the panel box as shown in the illustration below.

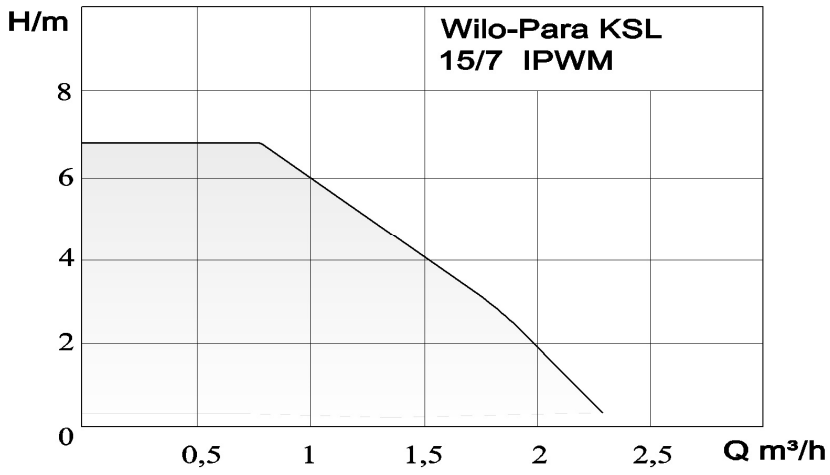



Closure of Room Thermostat contact generates a heat demand in CH mode.




| | |
|---|---|
| | *If the room thermostat is not connected to the boiler, the related two terminals should be connected* |

## 11. PUMP CHARACTERISTIC CURVE



## 12. EMISSION SETTINGS

Check the emission values at minimum and maximum capacities again and adjust combustion parameters precisely by following above steps.

After adjustment of parameters are finished, close all measurement points as they will be leak proof.

Flue gas emission values and flue gas temperature limit values are given at below table:

| | | |
|---|---|---|
| **O2** | <5,5 | **%** |
| **CO** | <50 | **ppm** |
| **CO2** | 8,4-9 | **%** |
| **Flue Gas Temperature** | <80 | **°C** |

# 13. MAINTENANCE

## 13.1. Monthly Maintenance

Monthly maintenance is a comprehensive process where general checks of condensing boiler and peripheral components are performed to prevent possible faults. After completion of maintenance and adjustment processes, make sure to perform an emission analysis.

- Clean gas and water line filters.
- Perform insulation measurements of ignition and ionization electrodes, replace electrodes should there be leakage to the body.
- Check ignition cables and sockets.
- Check all wiring points. Tighten loose connections.
- Check gas line pressure, it must be the same with the first adjusted pressure, otherwise the boiler load and emission values will also have changed.
- Check all bolts of the boiler. Tighten loose bolts.
- After starting the condensing boiler and making required adjustments, perform flue gas emission measurement and check if there is an ideal combustion.

## 13.2. Seasonal Maintenance

It is a comprehensive maintenance work when the condensing boiler is re-started after long periods of shut-down or interruptions. After completion of maintenance and adjustment processes, make sure to perform a combustion analysis.

- Check ignition and ionization electrodes.
- Check the operating function.
- Check the inlet/outlet water sensors.

Follow installation directions during maintenance.

Periodic maintenance shortages in condensing boilers can cause carbon monoxide poisoning.

When an operation is performed with the system water pressure, it is necessary to carry out the air removal process due to reasons such as water loss and fill from water installation during seasonal and monthly maintenance.

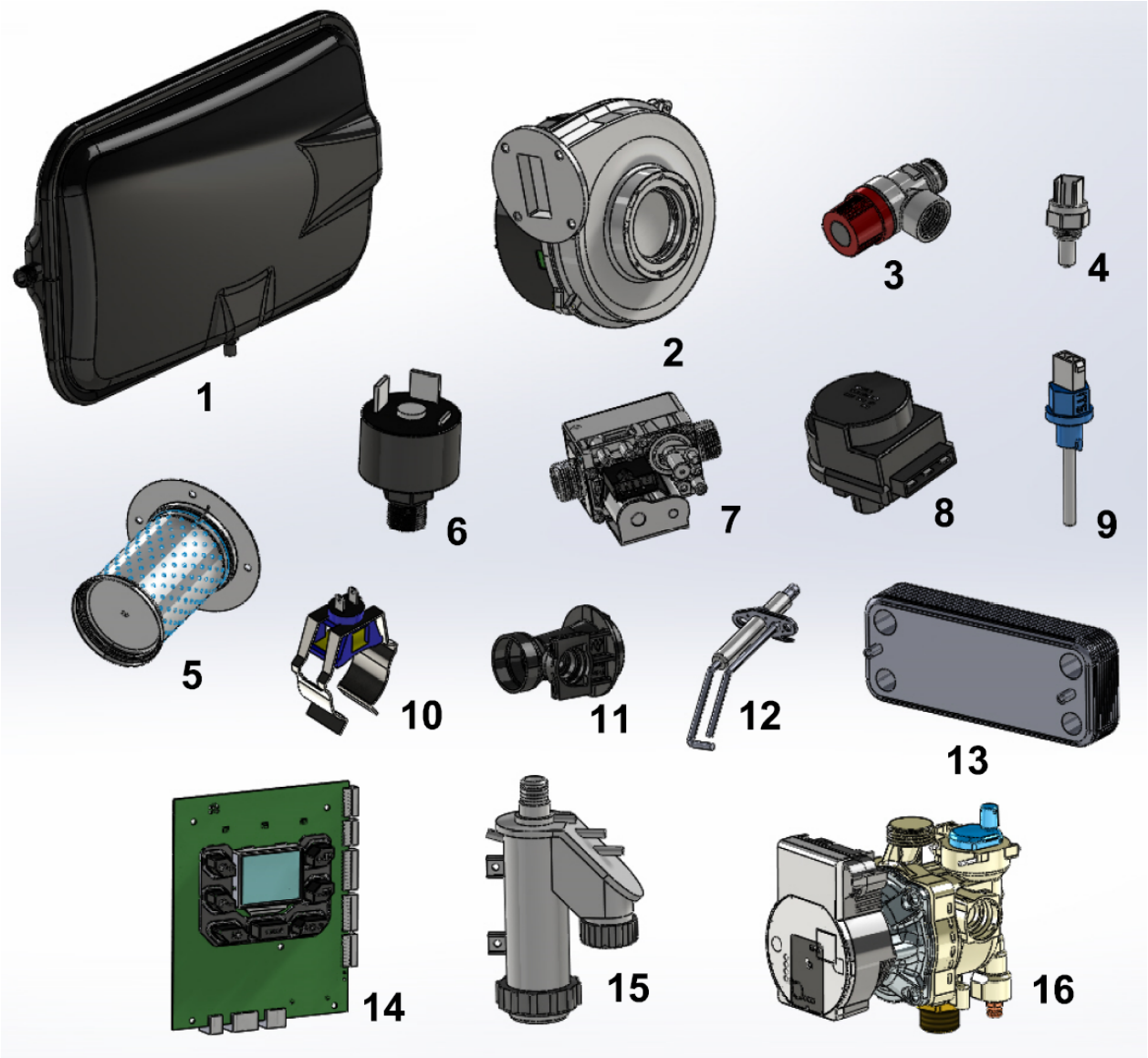
## 14. LIST OF ERROR CODE

| Error Code | Description | Cause-Solution |
|---|---|---|
| **E01** | Ignition Lockout indication | Lockout signal after no flame and all ignition trials are expired. Manual/remote reset is required. |
| **E02** | False flame indication | If flame signal is measured with no heat demand currently present. Manual/remote reset is required. |
| **E03** | High limit temperature protection (supply or return sensor) | High limit temperature protection detected on supply or return sensor. Manual/remote reset is required. |
| **E05** | No frequency feedback from fan after 1 minute | Fan driving problem – if the controller doesn't detect the expected tacho signal from the fan for 1 minute longer, error will be set. Manual/remote reset is required. |
| **E08** | Flame circuit failure | The detected flame level is outside expected bounds, meaning a problem on electronic components. |
| **E09** | Valve feedback error | The valve feedback doesn't respect controller commands. |
| **E12** | EEPROM integrity lockout | The EEPROM check fails. The data in EEPROM are corrupted. |
| **E15** | Drift sensors check failed | Drift sensors check failed. Manual/remote reset is required. |
| **E16** | Supply sensor stuck_at test failed | Stuck_at test on Supply sensor failed. Manual/remote reset is required. |
| **E17** | Return sensor stuck_at test failed | Stuck_at test on Return sensor failed. Manual/remote reset is required. |
| **E18** | Cracked sensor test failed | Crack sensor test failed. Manual/remote reset is required. |
| **E21** | Adc failure | Adc failure. The adc test executed at runtime fail, that detect a major fault on electronic components. |
| **E33** | Return water temperature sensor error | Return sensor out of normal operating range (short circuit or open circuit). |
| **E35** | Supply water temperature sensor error | Supply sensor out of normal operating range (short circuit or open circuit). |

## 15. SOLUTION RECOMMENDATIONS FOR SOME OF THE PROBLEMS

| **Problem** | **Cause** | **Explanation-Recommendation** |
|---|---|---|
| Gas smell | Gas line/Gas connections | Control of leak proofing of connections is required. Be sure that measurement points are closed. |
| Unburned gas smell | Flue tightness | Be sure that flue connections are leak proof and measurement points are closed. Check the combustion parameters. |
| Incomplete combustion | Gas supply pressure | Check the gas pressure complies with stated values. |
| | Fan problem | Check the working of fan. |
| | State of premix combustion head and heat exchanger | Check the state of combustion head and heat exchanger and ensure that both are clean. |
| | Combustion air connection | Check that there is nothing that blocks air suction and if the impulse connection is correct. |
| Shaky activation of burner | Gas pressure/Combustion parameters | Check the gas pressure and combustion parameters. |
| No combustion after ignition | Electrode/Ionization | Check the position/state of the electrode/ionization rod. |
| Boiler does not work. | Electric connection | Check the fuse and electrical connections. |
| | Sensor connections | Ensure that connections of sensors are correct and complete. |
| Boiler can’t reach the desired temperature. | Gas pressure | Ensure that gas pressure complies with stated values and there is constant gas flow at sufficient pressure. |
| | Heat exchanger | Control the state of combustion chamber. |
| | Boiler control | Control that boiler is at correct operation mod and temperature settings. |
| Safety valve activates often. | Safety valve | Ensure that safety valve settings are correct and works properly. |
| | Expansion tank | Check if it works properly. |
| Pump does not work. | Pump malfunction | Check the pump electric connections and parameters. Change the pump if there is proble in pump operation. |

## 16. SPARE PARTS




**PARTS**

| | | | |
|---|---|---|---|
| **1** | Expansion vessel | **9** | Flue gas temperature sensor |
| **2** | Fan | **10** | Heating temperature sensor |
| **3** | Safety pressure relief valve | **11** | Air/gas venturi |
| **4** | DHW temperature sensor | **12** | Ignition electrode & Ionization |
| **5** | Burner | **13** | Plate heat exchanger |
| **6** | Pressure sensor | **14** | Control card |
| **7** | Gas valve | **15** | Condensate trap |
| **8** | Three way valve | **16** | Pump with automatic air vent |

## 17. AFTER SALES SERVICES

Dear Customer,

We believe that providing a good service is as important as providing a good product. Therefore, we continue offering wide range of comprehensive services to our conscious customers.

For your suggestions, complaints and service requests
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**Kartal Monumento Plaza**
**KARTAL/İSTANBUL/TÜRKİYE**
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**Türkgücü OSB**
**Bülent Ecevit Bulvarı No:11**
**ÇORLU/TEKİRDAĞ/TÜRKİYE**
**Tel: +90 282 685 44 80-81**
**Fax: +90 282 685 42 09**

Also you can contact with us:
**Web site : www.ecodense.com**
**E - mail : servis@ecodense.com**

Please observe the following recommendations.

- Use the product in accordance with the principles of this manual.
- For any service demands regarding the product, please contact our Service Center from the above-mentioned phone numbers.
- Upon your purchase, register your warranty certificate during installation.

## 18. NOTES

**Please record and forward your measurements and observations to us.**
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