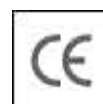




# CONDENSING BOILER INSTALLATION, OPERATING AND MAINTENANCE MANUAL



**ECODENSE WT-S DHW 45 L**  
**ECODENSE WT-S DHW 45 H**  
**ECODENSE WT-S DHW 45 XH**  
**ECODENSE WT-S DHW 55 L**  
**ECODENSE WT-S DHW 55 H**  
**ECODENSE WT-S DHW 55 XH**  
**ECODENSE WT-S DHW 65 L**  
**ECODENSE WT-S DHW 65 H**  
**ECODENSE WT-S DHW 65 XH**



20.11.2023 Rev. 02

[www.ecodense.com](http://www.ecodense.com)

**DEAR USER,**

The Condensing Boilers ECODENSE WT-S DHW 45 L, ECODENSE WT-S DHW 45 H, ECODENSE WT-S DHW 45 XH, ECODENSE WT-S DHW 55 L, ECODENSE WT-S DHW 55 H, ECODENSE WT-S DHW 55 XH, ECODENSE WT-S DHW 65 L, ECODENSE WT-S DHW 65 H, ECODENSE WT-S DHW 65 XH, 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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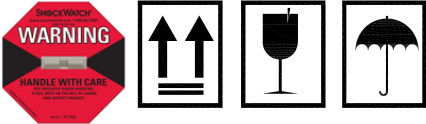
e-mail:[servis@ecodense.com](mailto:servis@ecodense.com)

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## 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.
 GAZ HATTINI TEMİZLEYİNİZ. CLEAN GAS LINE. ЧИСТАЯ ЛИНИЯ ГАЗ.	"Clean the gas line" warning on gas line.
	Carry in an upright position. Fragile Item. Protect against water.

## 1.2. General Safety Rules

- All personnel engaged in installation, disassembly, commissioning, operation, control, maintenance and repair should have received the necessary training 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;**

- Shut down valves of all gas devices.
- Open all doors and windows.
- Do not turn on electric devices or do not turn them off if they are working.
- Do not use burner derived tools such as match and lighter.
- Inform the gas company.



Do not store any inflammable materials in boiler room.



Wear hearing protectors if there is noise in boiler room.



### **In case of fire or other emergency;**

- Switch off the main switch
- Close the main fuel shut-off valve outside the plant.
- Take appropriate actions



Products should be stored in a dry, cool or dry conditioned places . Storage life of our products (service life) is 10 years.



Before commissioning and If there is pressure loss in the system due to seasonal maintenance; After water addition process, it is necessary to carry out that there is absolutely **no air** in the system and **Air removal** must be observed and deaeration must be repeated until you are sure that **there is no air in the system.**



Preventing damage caused by the presence of particles such as dirt, sediment, metal burrs on the heating circuit installation and condensing boiler, for the comfortable and longer service life of the boilers, It is recommended that the installation circuit should be Periodically taken into maintenance plan between 6 months – 1 year period.



## **BOILER ROOM**

Condensing Boilers must be installed in a suitable room/floor with minimum external air openings and sufficient to ensure optimum gas-air mixture combustion, in compliance with the regulations.

Air openings of the boiler room, burner fan intake vents or air ducts must stay open to the atmosphere and Bird cage should be installed in order to prevent any Bird, foreign body entrance

- a. The build up of toxic / explosive gas mixtures in the boiler room,
- b. Combustion with insufficient air, resulting in hazardous, anti-economical and polluting operation.

The Condensing boiler must be always protected from rain, snow and frost to prevent corrosion and paint deformations.

Keep the condensing boiler room clean and free of solid volatile substances, which could be sucked into the fan and clog the internal boiler or combustion air ducts.



Every **6-12** months, after first commissioning of boiler, the boiler devices should be cleaned with protective chemicals to prevent calcification and resultant blocking and corrosion on the metallic surfaces.



## **Flushing;**

On the Currently operating systems, appropriate chemical solution with the pH range of 4-6 should be selected for cleaning the pipeline installation for safety commissioning the condensing boiler.

In the new building installations and boiler heat exchangers, maintenance should be applied with chemicals with neutral pH (neutral) effect and preventive maintenance must be carried out periodically.

## 2. TERMS OF WARRANTY

Main and auxiliary equipment and all components used in ECODENSE WT-S DHW 45 L, ECODENSE WT-S DHW 45 H, ECODENSE WT-S DHW 45 XH, ECODENSE WT-S DHW 55 L, ECODENSE WT-S DHW 55 H, ECODENSE WT-S DHW 55 XH, ECODENSE WT-S DHW 65 L, ECODENSE WT-S DHW 65 H, ECODENSE WT-S DHW 65 XH, Condensing Boilers are guaranteed for 1 year 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.



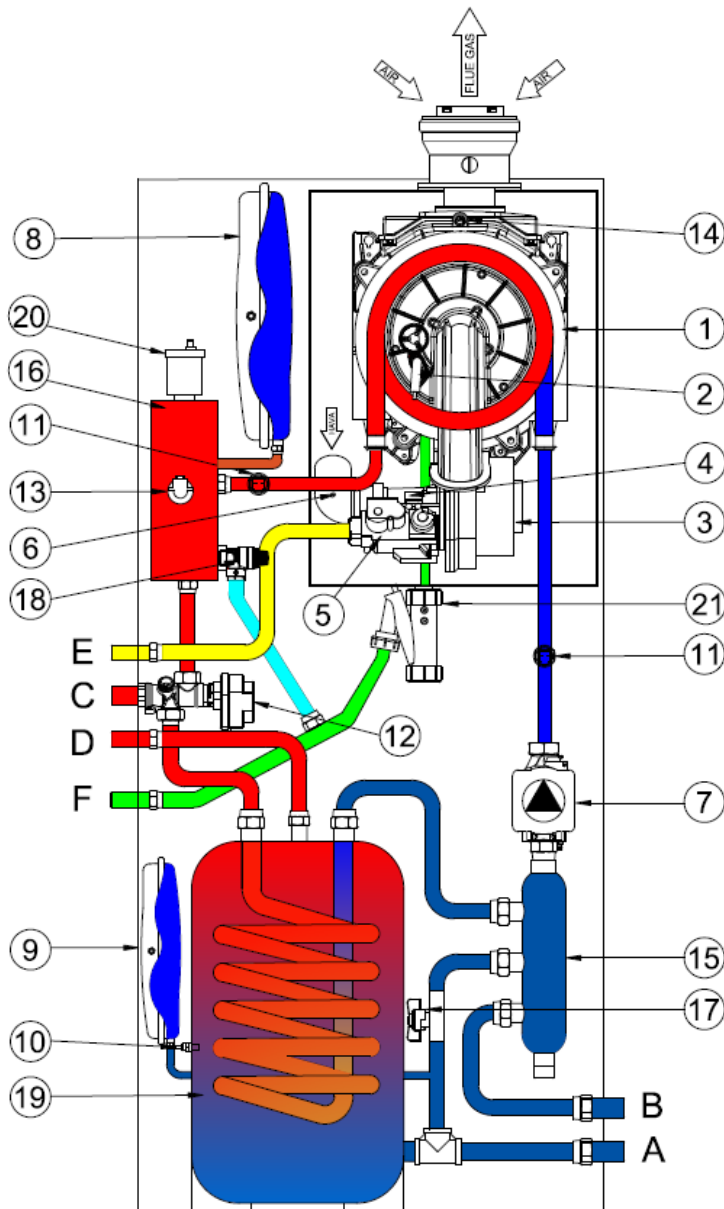
Our company reserves the right to make any modifications on the product and all instructions thereof for improvement purposes.

### 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. CONDENSING BOILER GAS, FLUE GAS AND HEATING WATER SCHEMA

#### ➤ WT-S DHW SERIES



#### LINKS

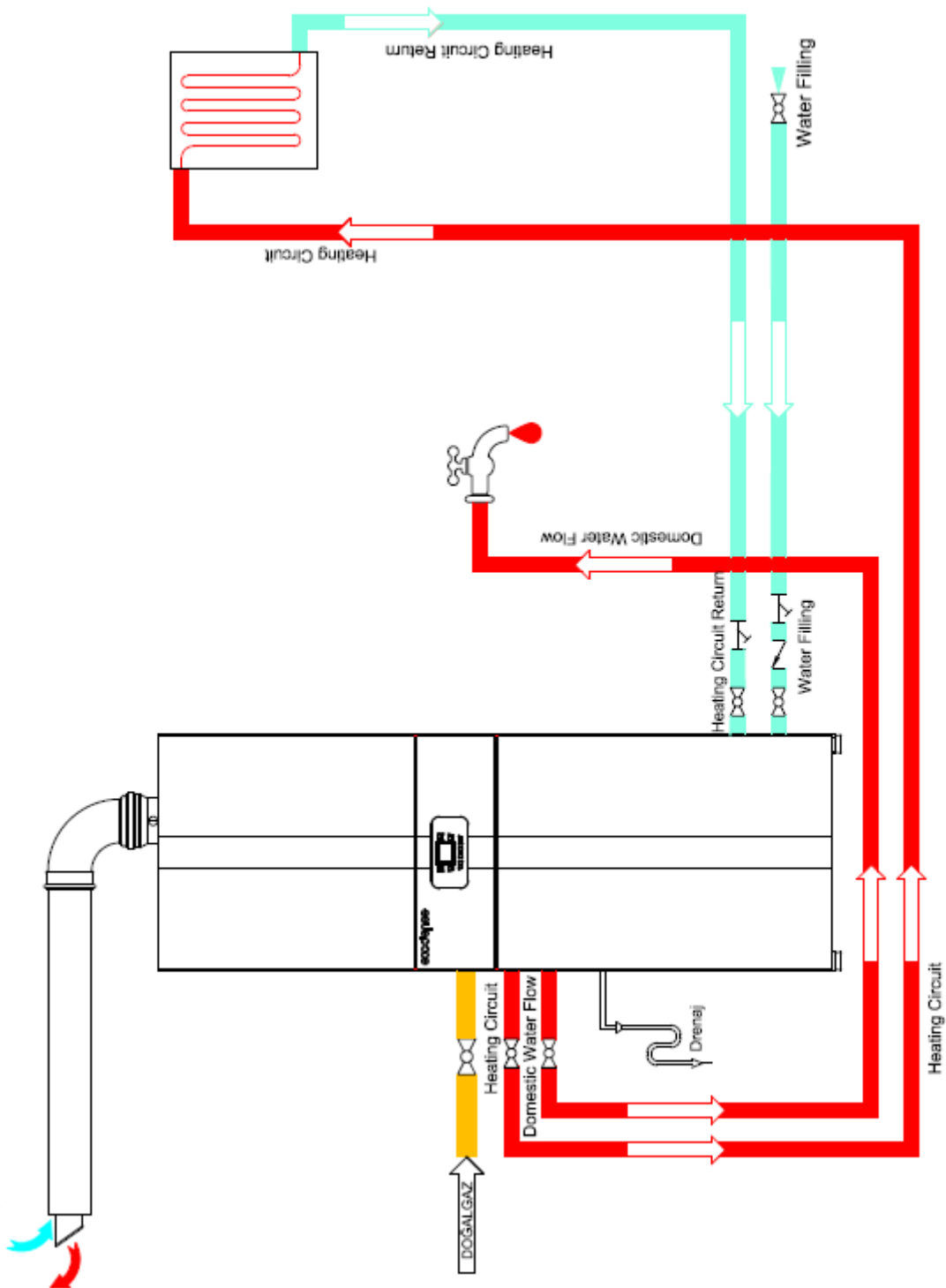
- A- DHW Inlet
- B- CH Inlet
- C- CH Outlet
- D- DHW Outlet
- E- Gas Inlet
- F- Condensate water Outlet

#### MAIN PARTS

- 1- Stainless Steel Heat Exchanger
- 2- Ignition Electrode & Exchanger
- 3- Modulating Fan
- 4- Venturi
- 5- Gas Valve
- 6- Silencer
- 7- Pump
- 8- Expansion Tank
- 9- Expansion Tank
- 10- Domestik Water Temperature Sensor
- 11- Inlet / Outlet Temperature Sensor
- 12- 3 Way Valve and Pumb
- 13- Pressure Sensor
- 14- Flue Gas Sensor
- 15- Cold Water Collector
- 16- Hot Water Collector
- 17- Water Fill Tap
- 18- Safety Valve
- 19- Boiler Tank
- 20- Air Shooter
- 21- Condensation Siphon

#### 4. CIRCUIT SCHEMES

##### ➤ WT-S DHW SERIES



## 5. WATER QUALITY

1. Before connection of condensing boilers any dirt and residue in circuit must be cleaned.
2. Water Hardness and pH measurements should be made by the authorized or central service in the field where the boiler will be commissioned before the commissioning, and it should be decided whether the water can be used in the boiler water installation.
3. Refined water must be used while adding water to heating circuit due to any loss in closed circuit.
4. Permitted water hardness for the water used in water circuit must comply with French or German (VDI 2035) hardness degree standards. The lime dissolved in water, settles on hot surfaces and forms an insulation layer when water temperature rises. This prevents heat transfer and high temperature might damage the heat exchanger. If boiler water cycles through water circuit, all circuit water must meet above requirements. If a plate heat exchanger separates boiler water and heating circuit water, only the water between boiler and heat exchanger must meet these requirements.

In order to prevent sedimentation, properties of the water to be used or to be reinforced in the water line should not exceed the following table values according to below mentioned capacities.

Boiler Type	Capacity	(Total Hardness)		
		ppm	(°F) French	VDI German
Single Boiler	0-50 kW	250	< 25	< 14
Single Boiler	50-200 kW	110	< 11	< 6,16

\*Volume to capacity ratio of water in circuit must be higher than 20 l/kW. Total volume of first filled water and additional water must be less than volume of system.

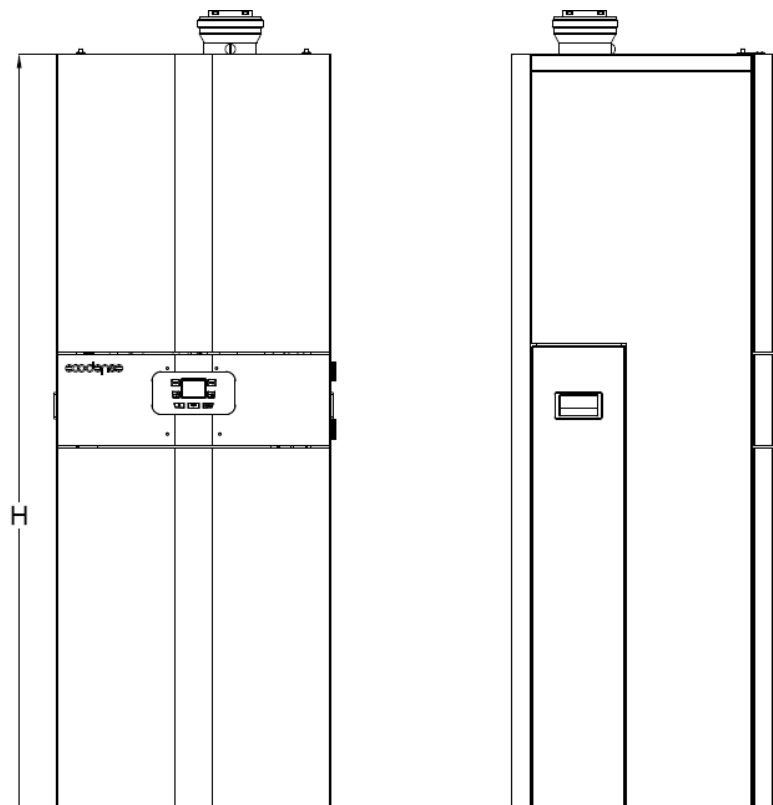
5. The customer or contract company should analyze the water to be used in the water line by an accredited organization prior to commissioning and a water quality report should be provided containing Minimum Hardness, pH and conductivity values, total dissolved solid values.
6. **pH value of unrefined water must be  $7 < \text{pH} < 9$ . This pH value can be achieved after filling the circuit with main circuit water with pH value of 7 and air separation. pH value of refined water must be between 7-8,5 pH.**
7. In new building installations, periodic preventive maintenance must be carried out by using organic solutions with a chemical pH effect [neutral].
8. Prior to commissioning of condensing boilers in old building water installations, a suitable type of organic solution with a pH value (acidic) between 4 and 6 should be washed.
9. The boiler water pipeline and heat exchanger should be treated with a suitable type of organic solution over a period of 6 to 12 months to prevent calcification and deposits that may occur over time in the installation.
10. If the water quality is outside the value ranges given above, it is mandatory to use a water softening filter or electrolytic limescale reducer in the system for water installations.

## 6. TECHNICAL DATA

### 6.1. Capacity Table

ECODENSE <i>WT-S DHW SERIES</i> WALL TYPE CONDENSING BOILER										
TECHNICAL SPECIFICATIONS	Unit	WT-S DHW 45 L	WT-S DHW 45 H	WT-S DHW 45 XH	WT-S DHW 55 L	WT-S DHW 55 H	WT-S DHW 55 XH	WT-S DHW 65 L	WT-S DHW 65 H	WT-S DHW 65 XH
<b>Thermal Capacity</b>										
Maximum Heating Capacity	kW	45	45	45	55	55	55	65	65	65
Minimum Heating Capacity	kW	11	11	11,0	12,0	12,0	12,0	13,5	13,5	13,5
Maximum Heat Output (80°C / 60°C)	kW	42,4	42,4	42,4	53,4	53,4	53,4	64	64	64
Minimum Heat Output (80°C / 60°C)	kW	7,6	7,6	7,6	9,1	9,1	9,1	10,9	10,9	10,9
Maximum Heat Output (50°C / 30°C)	kW	45,8	45,8	45,8	57,2	57,2	57,2	68,2	68,2	68,2
Minimum Heat Output (50°C / 30°C)	kW	8,3	8,3	8,3	9,9	9,9	9,9	11,8	11,8	11,8
Maximum DHW Capacity	kW	44,2	44,4	44,8	54,1	54,5	54,7	64,2	64,6	64,8
<b>Thermal Efficiency</b>										
Efficiency @ Pmax. (80°C / 60°C)	%	97,4	97,3	97,7	97,5	97,4	97,7	97,3	97,2	97,4
Efficiency @ Pmin. (80°C / 60°C)	%	98,3	98,2	98,7	98,8	98,6	98,5	98,4	98,3	98,1
Efficiency @ Pmax. (50°C / 30°C)	%	105,2	105,3	105,4	105,3	105,2	105,1	105,6	105,2	105,6
Efficiency @ Pmin. (50°C / 30°C)	%	107,4	107,6	107,2	107,3	107,4	107,2	107,1	107,6	107,6
Efficiency @ %30 (30°C)	%	108,7	108,6	108,5	108,6	108,7	108,6	108,7	108,9	108,8
<b>Domestic Hot Water Circuit</b>										
DHW Temperature Setting Range	°C	10-65	10-65	10-65	10-65	10-65	10-65	10-65	10-65	10-65
DHW Storage Tank	L	60	90	120	60	90	120	60	90	120
DHW Flow Rate at Continuous Usage (ΔT=25°C, 20 °C /45 °C)	L / dk	12,1	18,4	24,2	12,2	18,2	24,4	12,3	18,6	24,6
<b>Central Heating Circuit</b>										
Maximum Operating Temperature	°C	85	85	85	85	85	85	85	85	85
Maximum Operating Pressure	bar	3	3	3	3	3	3	3	3	3
Minimum Operating Pressure	bar	0,8	0,8	0,8	0,8	0,8	0,8	0,8	0,8	0,8
<b>Gas Specifications</b>										
Gas Type	-	G20-G31	G20-G31	G20-G31	G20-G31	G20-G31	G20-G31	G20-G31	G20-G31	G20-G31
Gas Inlet Pressure (G20)	mbar	20	20	20	20	20	20	20	20	20
Gas Inlet Pressure (G31)	mbar	37	37	37	37	37	37	37	37	37
Maximum gas consumption	Nm³/h	4,69	4,69	4,69	5,73	5,73	5,73	6,78	6,78	6,78
Minimum gas consumption	Nm³/h	1,15	1,15	1,15	1,25	1,25	1,25	1,41	1,41	1,41
<b>Combustion Specifications</b>										
Maximum Flue Gas Temperature (50°C / 30°C)	°C	42	42	42	44	44	44	45	45	45
Maximum Flue Gas Temperature (80°C / 60°C)	°C	65	65	65	65	65	65	65	65	65
NOx Emission Class (EN 15502-1+A1)	-	5	5	5	5	5	5	5	5	5
<b>Electrical Specifications</b>										
Electrical Supply	V / Hz	230/50	230/50	230/50	230/50	230/50	230/50	230/50	230/50	230/50
Protection Class	IP	X4D	X4D	X4D	X4D	X4D	X4D	X4D	X4D	X4D
Energy Consumption	W	190	190	190	210	210	210	300	300	300
Fuse Current	A	2	2	2	2	2	2	2	2	2
<b>Circuit Specifications</b>										
Gas Connection Diameter	inch	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"
CH Circuit Inlet/Outlet Diameter	inch	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"
DHW Circuit Inlet/Outlet Diameter	inch	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"
<b>General Specifications</b>										
Net Weight	kg	165	190	205	215	240	262	284	316	330
Flue Diameter (Ø)	mm	80/125	80/125	80/125	80/125	80/125	80/125	80/125	80/125	80/125
G20 Natural Gas , G31 LPG										

## 6.2. Condensing Boiler Dimensions



MODEL	W (mm)	H (mm)	D (mm)	Boiler Tank Volume (L)
WT-S DHW 45 L	575	1435	565	60
WT-S DHW 45 H	575	1665	565	90
WT-S DHW 45 XH	575	1935	565	120
WT-S DHW 55 L	575	1435	565	60
WT-S DHW 55 H	575	1665	565	90
WT-S DHW 55 XH	575	1935	565	120
WT-S DHW 65 L	575	1435	565	60
WT-S DHW 65 H	575	1665	565	90
WT-S DHW 65 XH	575	1935	565	120

## 6.3. Noise Level

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

## 7. CONDENSING 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.



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.



Clean the inside of fuel line thoroughly before installing the burner to the fuel line. Any damage that may occur due to solid objects and metal particles from the fuel line shall not be covered by our company.

### 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.



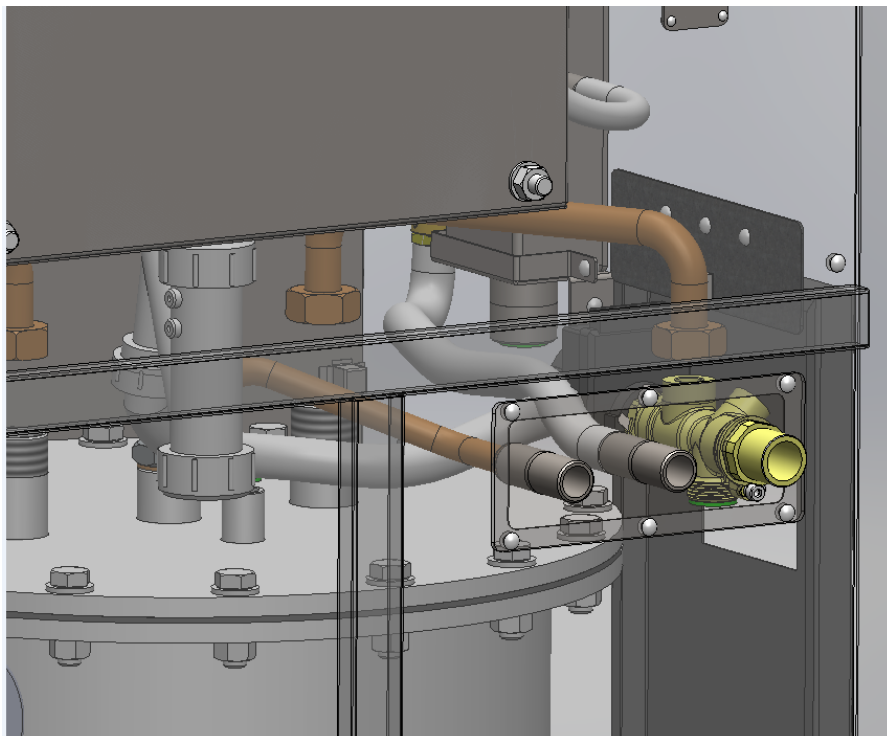
In order to keep the pH value in balance, passing the water circulating in the system through a softening step (Reverse osmosis systems) will be useful in the continuity of the water quality.

## 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 dirt 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. Closed circuit maximum operation pressure is 3 bars.
3. Safety valve fixed to 3 bars must be used.
4. Ensure that stack connections, are at right radius and connected as leak proof.
5. PWM pump has its automatic air vent. It is suggested that air vent must be used on CH circuit for safety.
6. Hydraulic circuit pressure is displayed on control card display. Check the system water pressure on the display.
7. 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.
8. Ensure that gas pressure complies with boiler operation instructions. In situations where gas pressure is higher than required pressure, a regulator must be used.
9. 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.
10. In case of an imbalance in electrical installation's voltage value, It is recommended to install a voltage regulator of 1 kw, up to 550 kw capacity and 2 kw; for capacities over 550kw in order not to damage the electronic card on the device.
11. In the regions with cold and minus winter conditions, only Propylene Glycol containing Anti-freeze liquid is allowed to use as a frost protection liquid for boilers, Content suitability  
It is advised to interview with the manufacturer about Suitable liquid content.



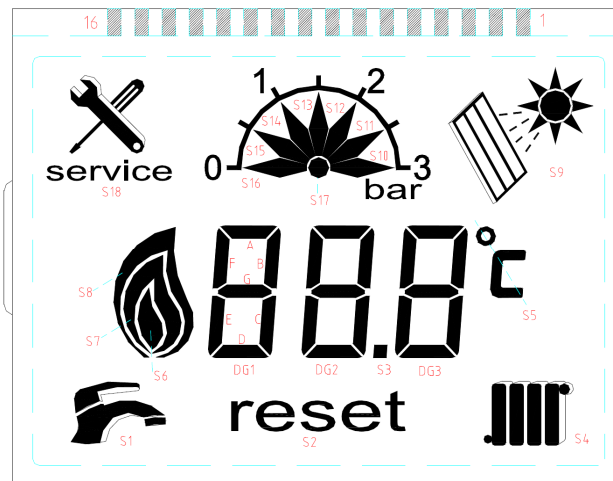
On first start-up if there is deficiency in the system detected by ECODENSE authorized service technicians, technicians are not allowed to activate the system.

## 9.1. Control Panel Description



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

## 9.2. Display Description



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

### 9.3. Operating Principle

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

#### 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 increased 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 condensing boiler is started-up. The radiator symbol on the screen will be flashing when condensing boiler 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, condensing boiler is worked on DHW mode and tap symbol will be flashing when condensing boiler works at DHW mode. Because of the DHW priority, even if the appliance is operating at CH, condensing boiler will switch to when DHW is needed.

#### 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 increased by pressing (**K7**) button, and decreases by pressing (**K6**) button. DHW set temperature is displayed on the screen when pressed to these buttons. condensing boiler will started at DHW mode when DHW is needed.

### 9.4. Boiler Frost Protection Mode

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

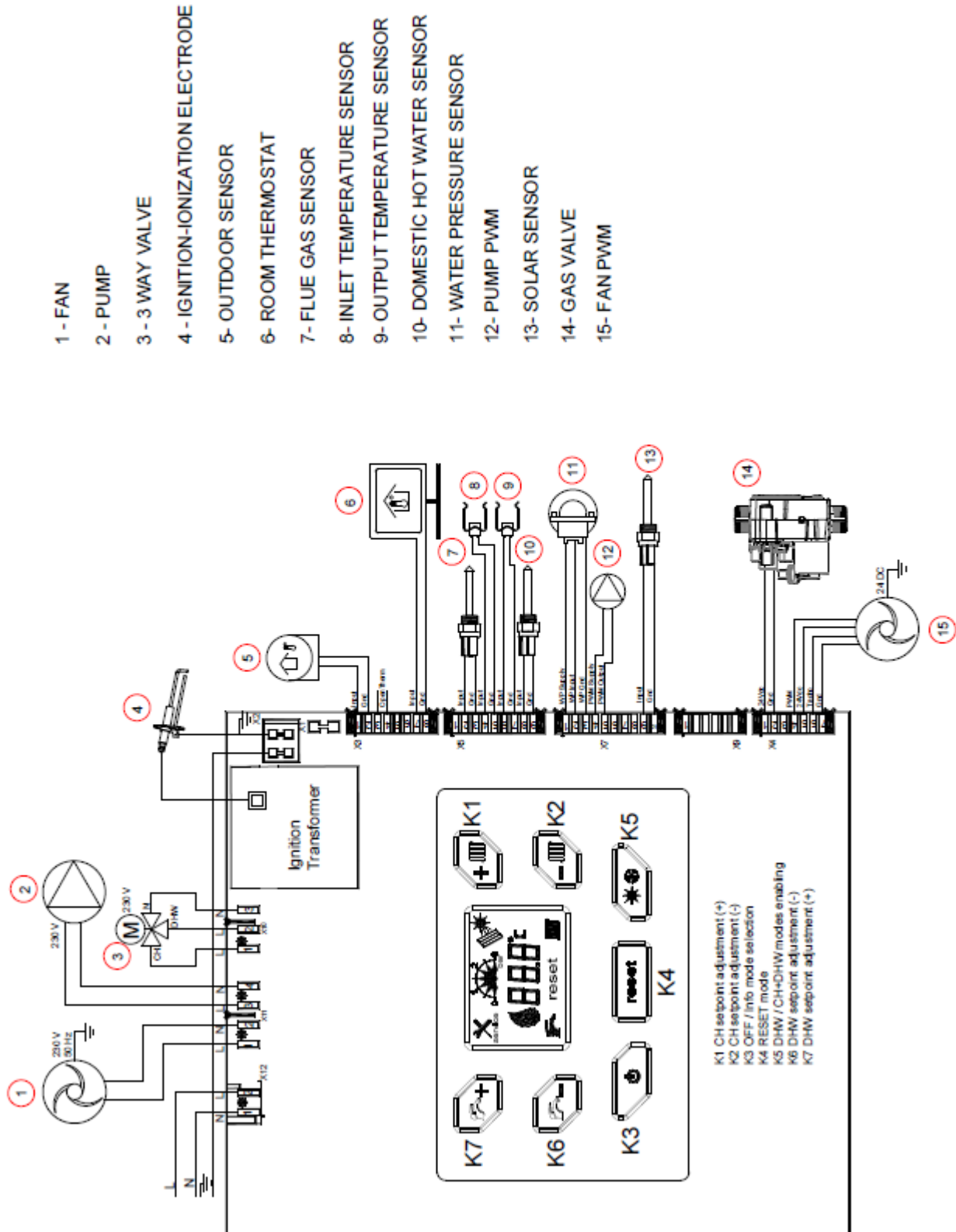
Frost protection mode works under the conditions below:

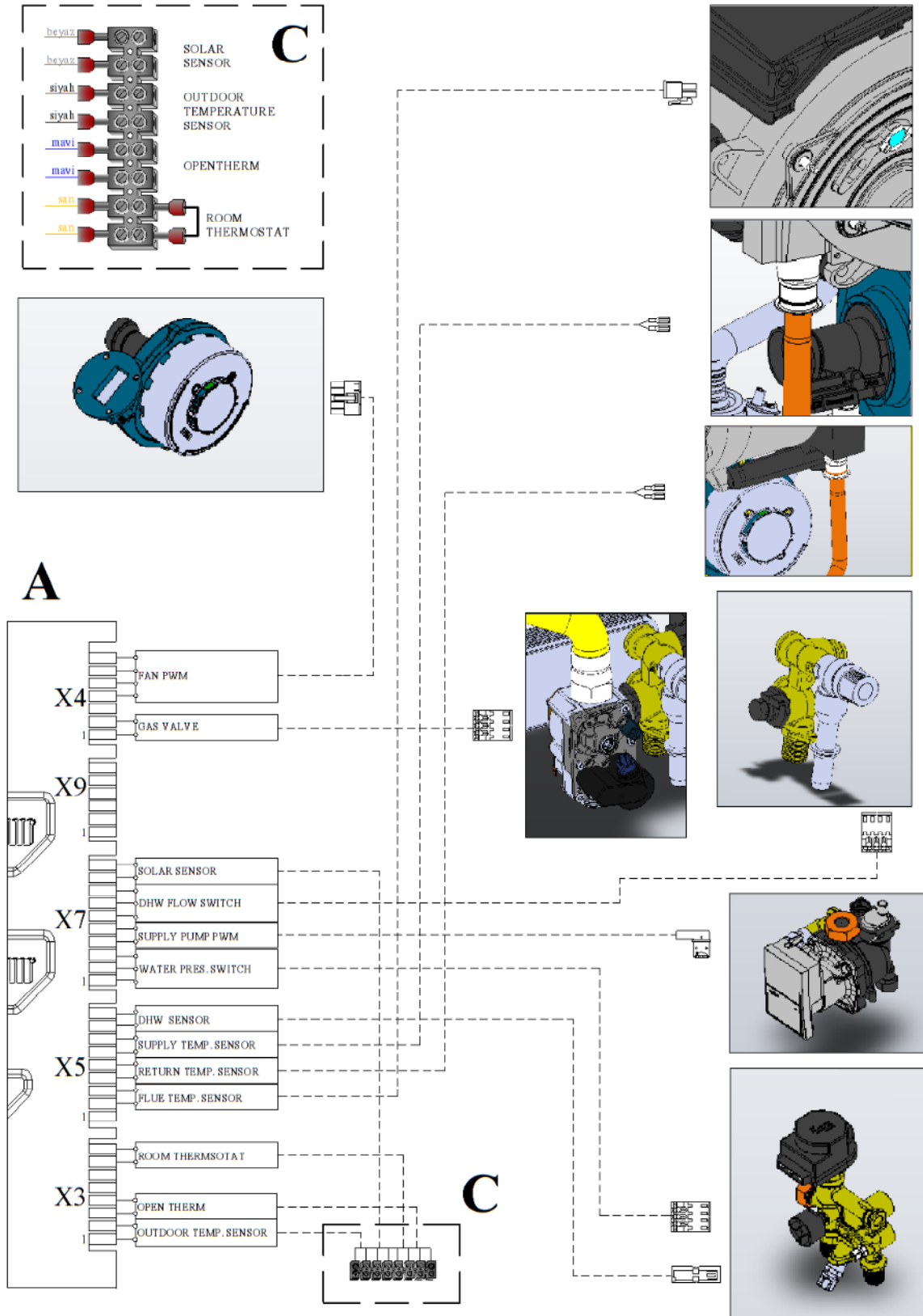
1. Condensing boiler electrical supply should be turned on.
2. Main gas valve on gas circuit should be opened.
3. Hydraulic water pressure should be adjusted properly.

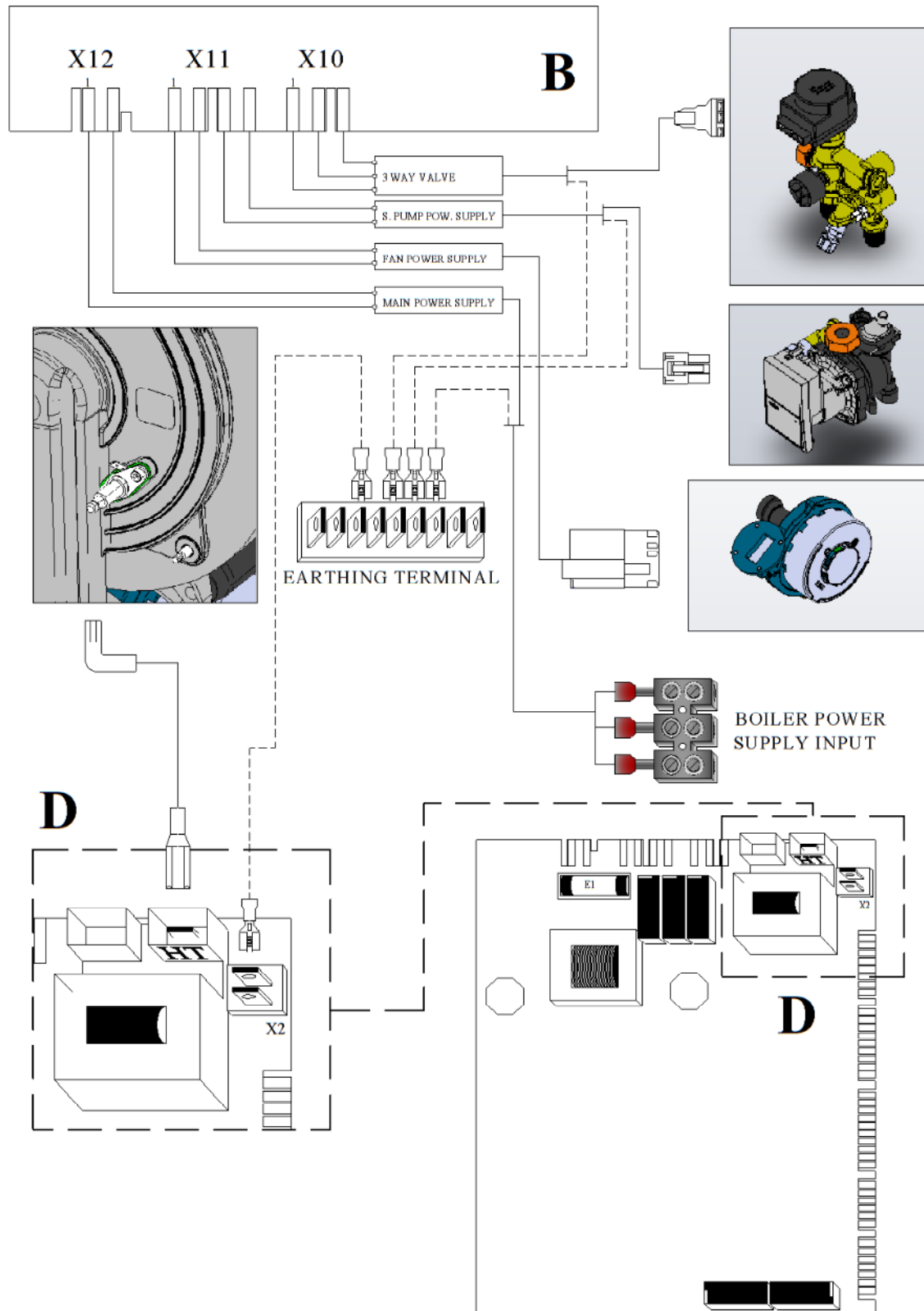
Condensing boiler should not be blocked.

## 10. ELECTRICAL DIAGRAM AND RELATED CONNECTIONS

### ➤ WT-S DHW

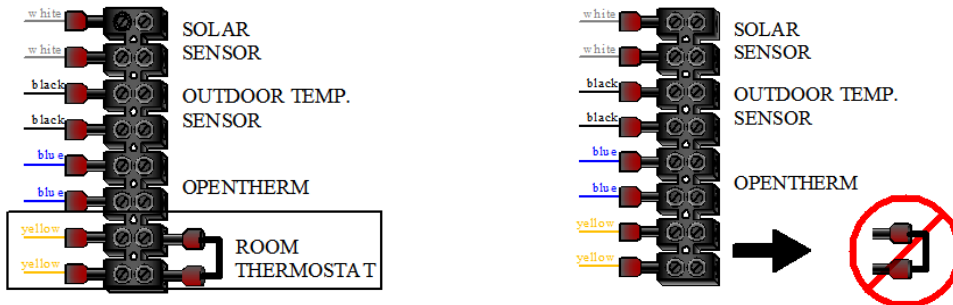




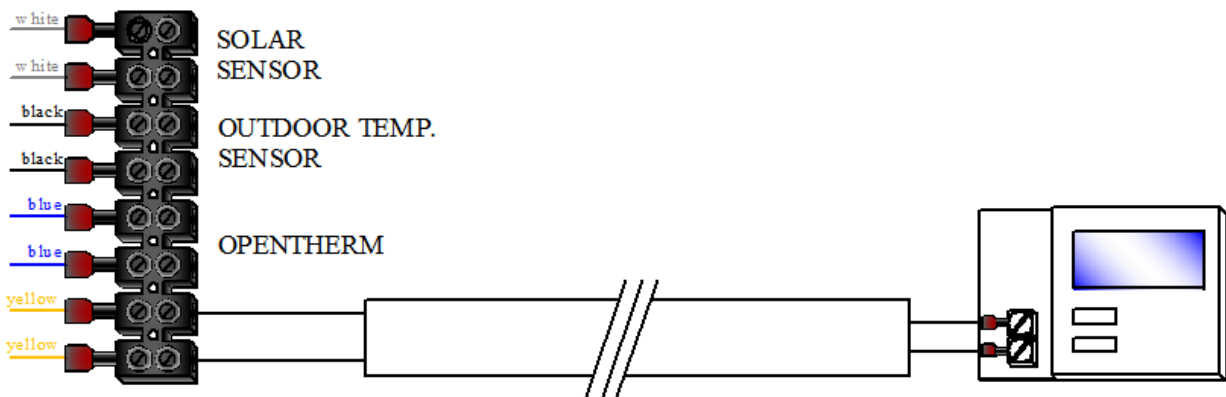


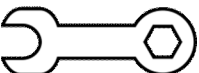
## 10.1. Connection of room thermostat

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



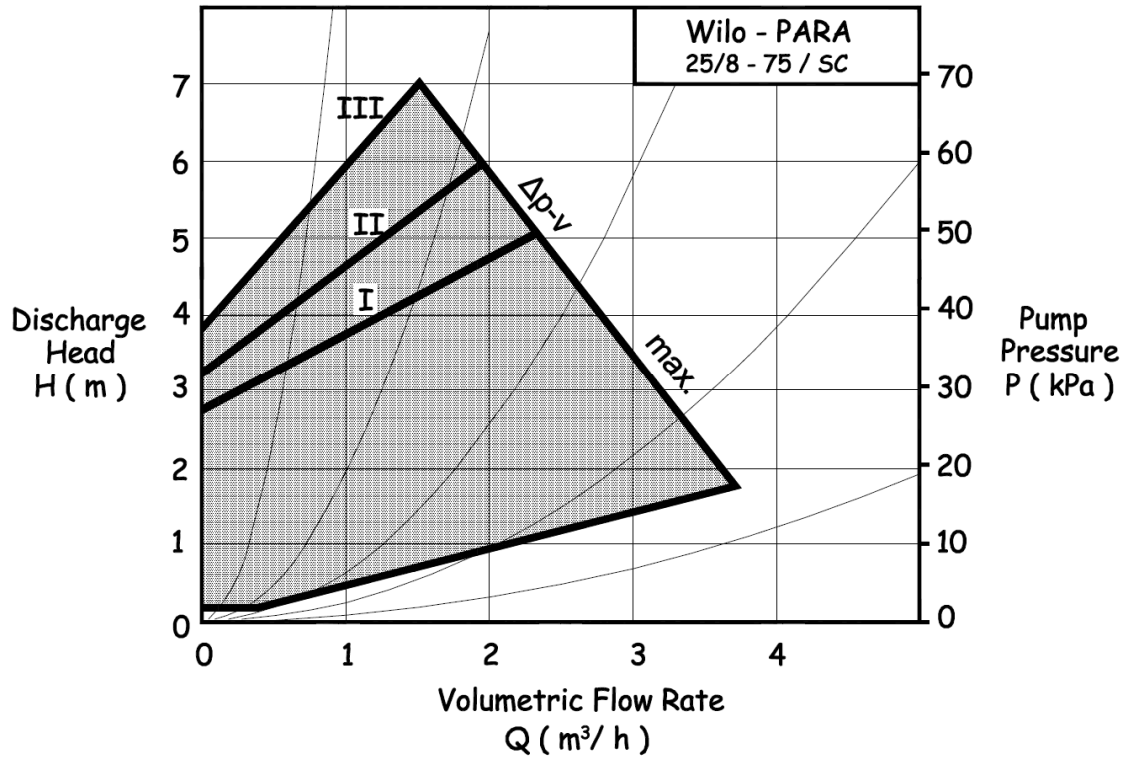
Closure of Room Thermostat contact generates a heat demand in CH mode.



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

## 11. PUMP CHARACTERISTIC CURVE

### ➤ WT-S DHW



## 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:

<b>O<sub>2</sub></b>	<5,5	%
<b>CO</b>	<50	ppm
<b>CO<sub>2</sub></b>	8,4-9,2	%
<b>Flue Gas Temperature</b>	<65	°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.



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



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

## 17. NOTES

[illegible]

Please record and forward your measurements and observations to us.  
**www.ecodense.com**