

TERM**DINAMIK**[®]
HEATING SYSTEMS

TERMODENS

PREMIX CONDENSING (HERMETIC) COMBI BOILER

OPERATING AND INSTALLATION MANUAL

(24 kW)



Form No: 20230810



Dear Customer;

We would like to thank you for choosing our product, and we hope you will enjoy your use of the product. Our wish is to ensure that you can get the best possible performance from our product. Therefore, please carefully read this manual before using the product and keep it close to the device for future reference.

This manual will help you to use the device in a more efficient and safe manner. For this purpose, please be mindful the following points.

- Please make sure to read the manual before starting and using the product.
- Please follow the information and rules provided for safe use of the product.
- Please be aware the manual may be applicable for multiple models. Differences between discrete models are expressly specified in the manual.

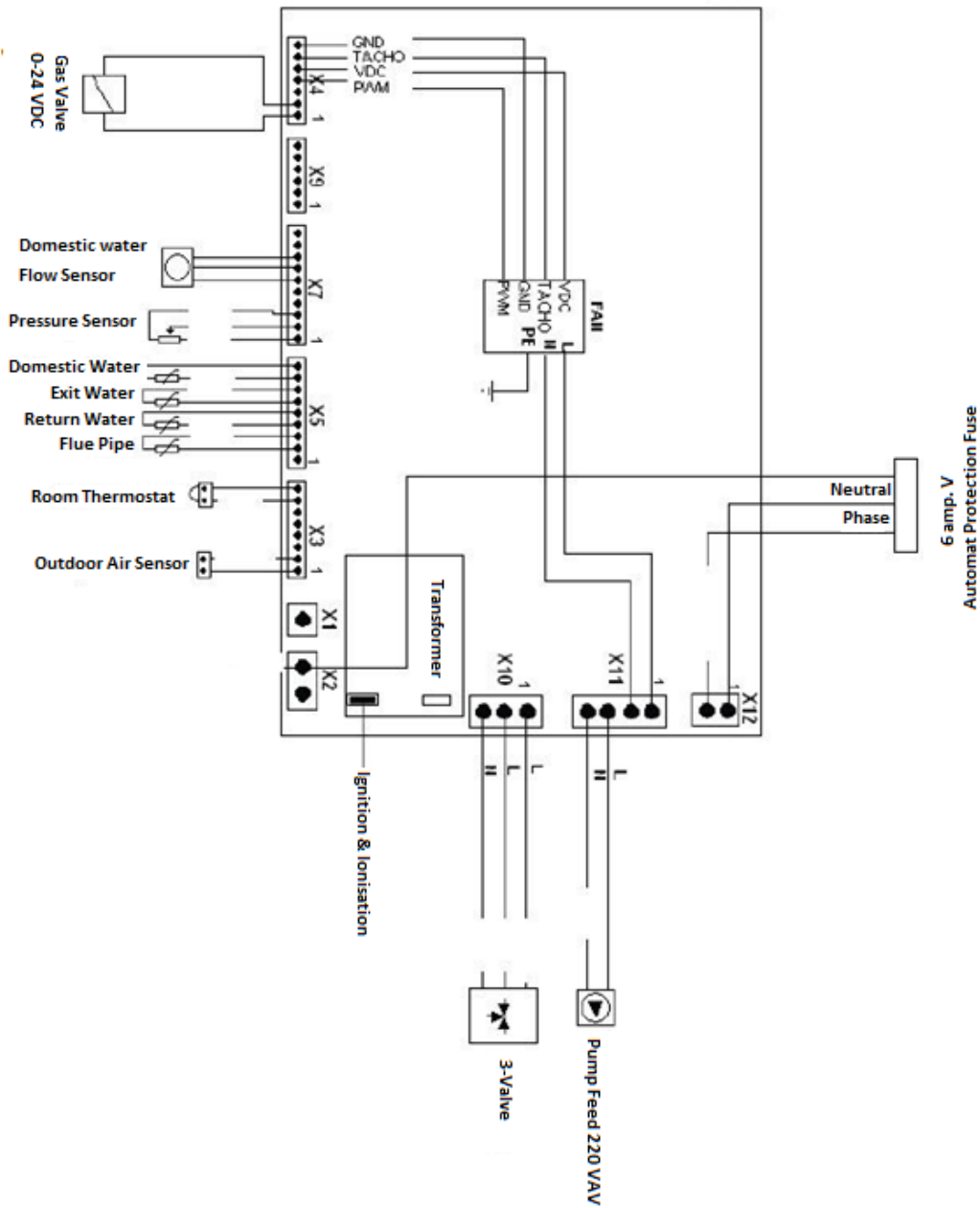
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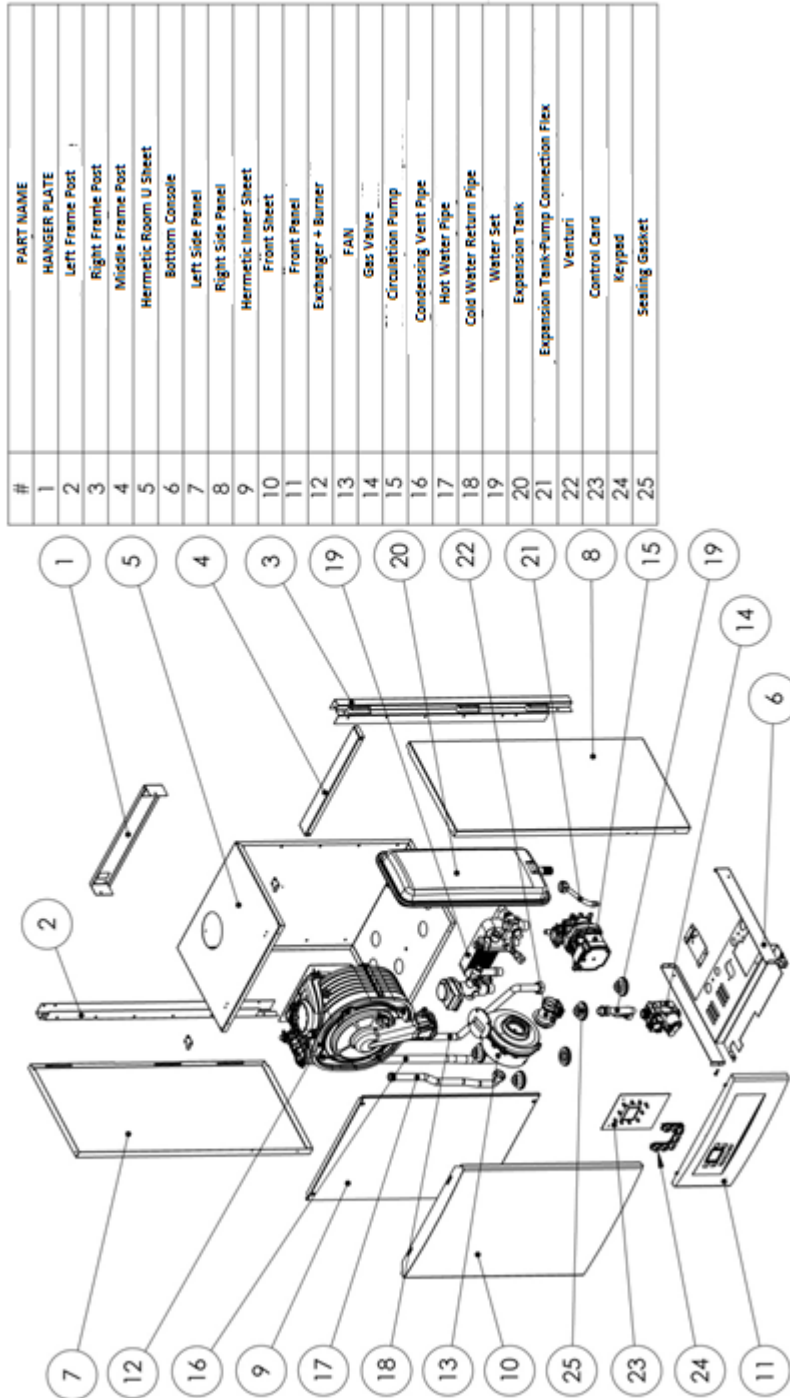
TECHNICAL SPECIFICATIONS

<i>Performance</i>	<i>Unit</i>	<i>Termodens 24</i>
<i>Gas Type</i>		<i>Natural Gas</i>
<i>Supply Pressure</i>	<i>mbar</i>	<i>20</i>
<i>Nominal Heat Load (80 °C/60 °C)</i>	<i>kW</i>	<i>26,2</i>
<i>Nominal Heat Power (80 °C/60 °C)</i>	<i>kW</i>	<i>24,3</i>
<i>Partial Heat Load (50 °C/30 °C)</i>	<i>kW</i>	<i>6,57</i>
<i>Partial Heat Power (50 °C/30 °C)</i>	<i>kW</i>	<i>6,50</i>
<i>Output (80 °C/60 °C)</i>	<i>%</i>	<i>98</i>
<i>Output (50 °C/30 °C)</i>	<i>%</i>	<i>109</i>
<i>Heating Temperature Range</i>	<i>°C</i>	<i>35-80</i>
<i>Domestic Water Temperature Range</i>	<i>°C</i>	<i>35-60</i>
<i>Heating System Pressure Range</i>	<i>bar</i>	<i>1~3</i>
<i>Recommended Operating Pressure</i>	<i>bar</i>	<i>1~1.5</i>
<i>Domestic Water Circuit Operating Pressure</i>	<i>bar</i>	<i>0.3~6</i>
<i>Expansion Tank Volume</i>	<i>l</i>	<i>7</i>
<i>Nominal Hot Water Capacity</i>	<i>l/dak</i>	<i>13,76</i>
<i>Gas Inlet</i>		<i>G 3/4"</i>
<i>Heating Water Return Flow Inlet & Outlet</i>		<i>G 3/4"</i>
<i>Domestic Water Inlet & Outlet</i>		<i>G 1/2"</i>
<i>Chimney Diameter</i>	<i>mm</i>	<i>Ø100 / Ø60</i>
<i>Power-Supply Source</i>	<i>V~Hz</i>	<i>220~50</i>
<i>NOx Range</i>		<i>5</i>
<i>Dimension (Width X Length x Depth)</i>	<i>mm</i>	<i>400 x 753 x 280</i>

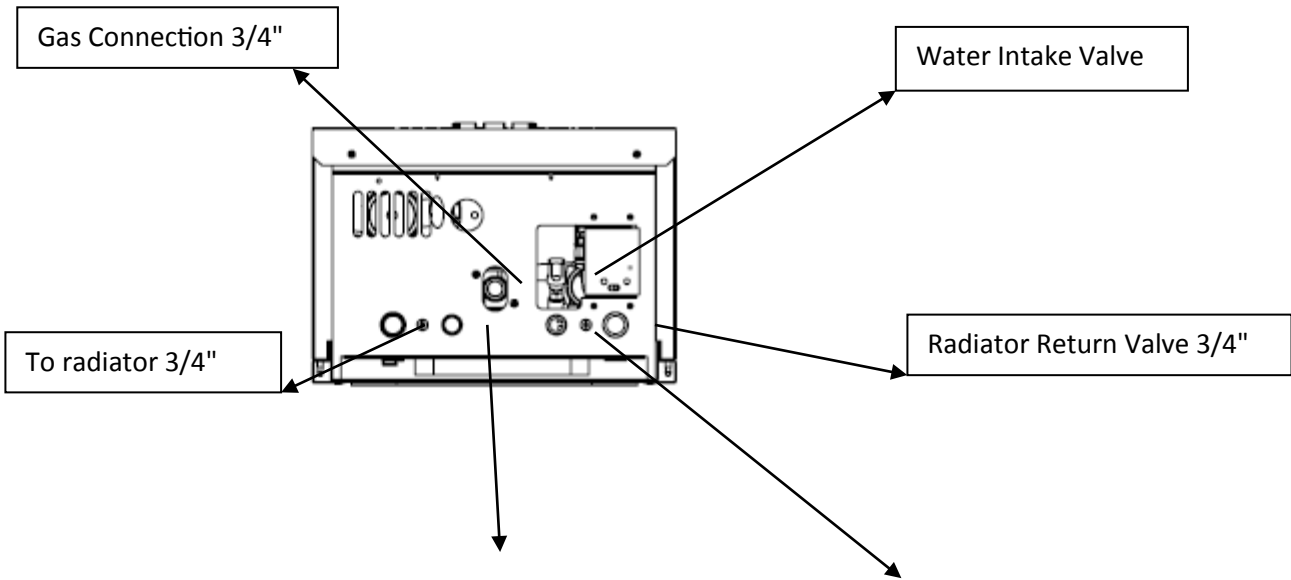
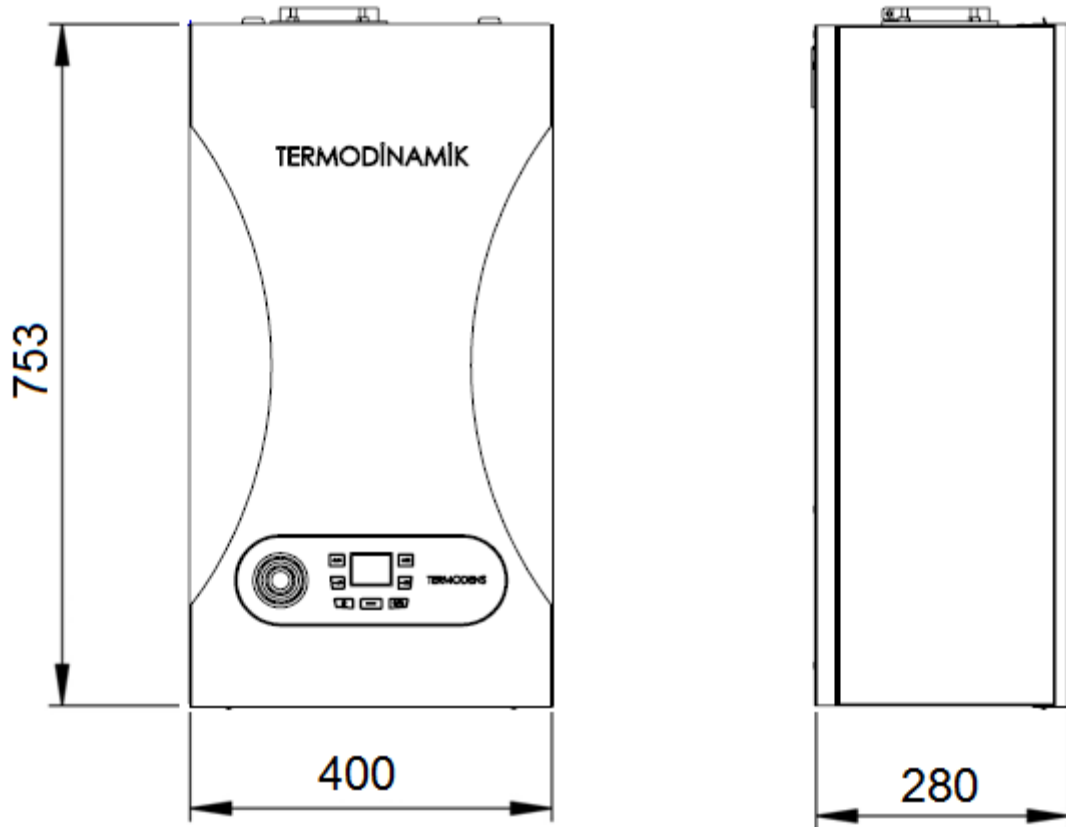
ELECTRICAL CIRCUIT DIAGRAM



PRODUCT DIAGRAM



MAIN DIMENSIONS



Domestic Water Outlet 1/2"

Domestic Water Inlet 1/2"

GENERAL INFORMATION

- Fuel and air pre-mixed at the ideal rate so that all of the fuel is combusted by performing complete combustion and thanks to the superior condensation technology, yield reaches the highest value.
- Premix full condensing combi boiler with low flame length, minimizes harmful flue emissions.
- High efficiency (109%) with steel heat exchanger and superior condensation technology.
- Hermetic model.
- Overheating protection.
- NTC controlled temperature control.
- Due to the Venturi mixing of air and gas in the appropriate rate, high combustion efficiency, and gas saving.
- Energy saving with frequency controlled circulation pump.
- 3-way valve and pump antiblock protection.
- Low and high water pressure safety valves.
- LCD display that shows operation and fault status. Ergonomic and stylish design.
- Constant temperature water supply and long life with stainless steel plate heat exchanger.
- Safety ignition system, ionization controlled flame control.
- Environment friendly with low emission rates.
- Safety system against siphon blockage.
- Optimization of combustion with online flue temperature measurement.

SAFETY WARNINGS

- The device must be installed in a well-ventilated space.
- Use the original exhaust gas pipe in order to ensure removal of exhaust gasses to external space to prevent possibility of carbon monoxide poisoning.
- The device must be used with grounded power sockets.
- Do not interfere with sealed assemblies.
- First start-up of the device must only be done by an Authorised Service Personnel.
- Do not keep petrol or similar flammable liquids or gasses in close proximity to the device.
- Do not try to supply hot water to multiple points at the same time, otherwise you might get water at low or very low temperatures.



The device is only suitable for use with natural gas.

Please be aware that following problems are outside of warranty scope

Breakdowns and performance losses originating from scaling (It must be remembered that waters with high level of hardness will cause scaling);

Problems arising out of use of the device outside the scope of technical specifications (e.g. for industrial purposes, etc.); and

Problems arising out of use of waters other than running water (e.g. artesian water, waste water, etc.).



Filters must be installed on utility water input and running water input pipes.

If you smell gas;

- Close all natural gas devices and valves, open doors and windows and ensure ventilation.
- Close the main valve. Do not smoke or ignite lighters, matches or any other ignition source.
- Do not touch electric switches. Do not turn electrical equipment on or off. Do not pull any power plug from any socket.
- Do not use or let others use doorbells. Do not use your phone as this might cause sparks.
- Immediately evacuate any space with the gas smell.
- Do not attempt to repair the breakage by yourself.

Symptoms of CO (carbon monoxide) poisoning;

Headache, distorted perception, loss of muscle control, weakness, distorted eyesight, dizziness, nausea, loss of consciousness..



- Electrical connections must only be made in accord with relevant laws and regulations. The device must be connected to a 220-230V ~ 50Hz power supply and the power line must be grounded. The connection must be made by connecting the phase and neutral terminals over a 2 Amp.V automatic protective fuse.
- It is recommended to use a suitable regulator in case the network voltage is under 210V or over 230V.

DEVICE INSTALLATION



Before installing and starting the device for the first time please be aware and follow the warnings and recommendations listed below both in order to ensure safe and efficient operation of the device and in order to ensure safety of yourself and others.

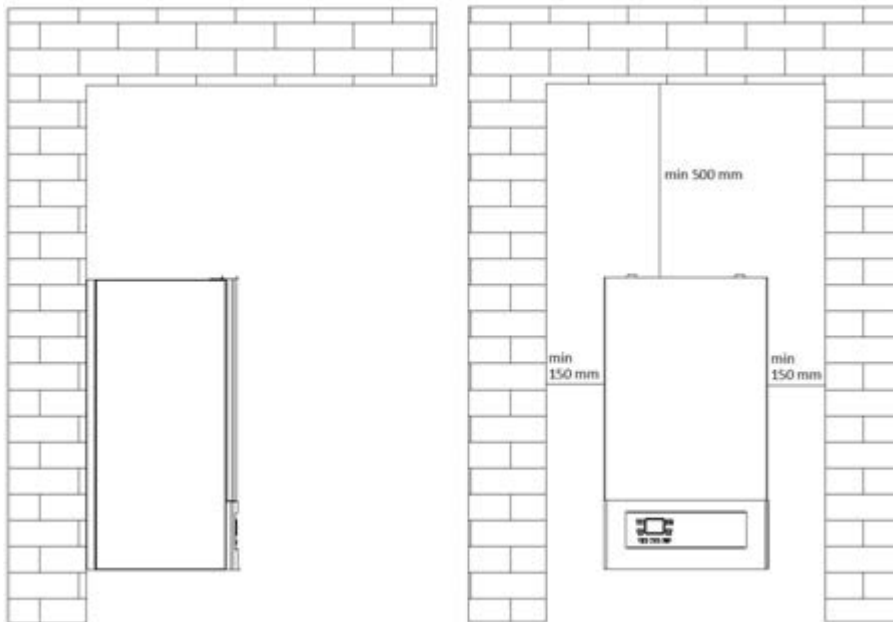
- Installation and first start-up of the device must only be performed by an Authorised Service Personnel.
- Where natural gas is used natural gas fixtures project must be prepared and approved in accord with the specifications of the local gas distribution.
- Advice of the Authorised Service Personnel must be taken into account in regard of issues like mode of operation of the device, exhaust gas discharge connection, etc.
- It is recommended to have the device periodically maintained at least once per year by an Authorised Service Personnel (this service is subject to charge). Periodic maintenance must be performed before winter season.
- If the heating fixtures are dated they must be cleaned with suitable officially registered products before the device is installed. To avoid damaging metal, plastic or rubber elements of the fixtures non-acidic and non-alkaline cleaning agents should be preferred and used in accord with instructions of the manufacturer. Presence of dirt, blockages, burrs or other particles inside the fixtures will negatively affect operation of the combi boiler and cause problems like noisome operation, overheating, inefficiency, etc. Breakdowns and problems originating from the fixtures will be outside of the warranty scope.

Installation must only be performed by an Authorised Service Personnel. Applicable legislations, statutes and local technical regulations as well as relevant technical specifications must be followed during installation of the device. Please make sure that the combi boiler and all related parts are completely present and ready before beginning installation.

- Check integrity of wall supports before installation.
- Flue opening must be positioned to ensure that air flow will not be obstructed
- In case of any abnormality shut off the power and do not attempt to perform any intervention or repair by yourself. Otherwise you might give rise to consequences and risks which will be under your own responsibility and you will void your warranty.

Installation Spacing

The minimum spacing dimensions below must be followed in order to provide the authorised service personnel with the space they need to access and intervene on the device in case of a breakdown or maintenance operation.



Gas Connection

Boiler is designed for use with natural gas. Before gas connection is made the network type must be checked to see whether the network gas type is among the types specified on the product label. The pressure level of the gas feed line must also be at a compliant value.

Heating and Hot Water Circuits Fixture Connections

The maximum operation pressure for the hot water circuit is 6 bars. In case the network pressure is above 6 bars, a pressure reducer must be used.

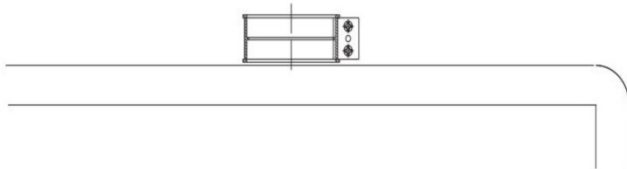
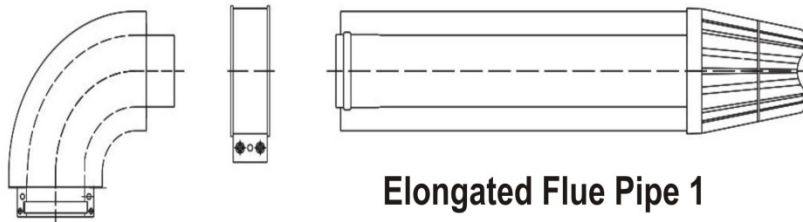
In case there is a pressure increase (3 bars of more) in the radiator heating circuit the safety valve will discharge the excess water. It would be best to connect a hose between the safety valve discharge port and waste water drainage to ensure that the water discharged from the safety valve is not spilled into the combi boiler space.



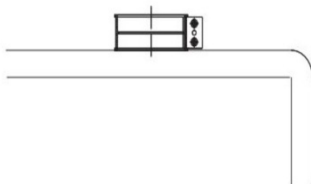
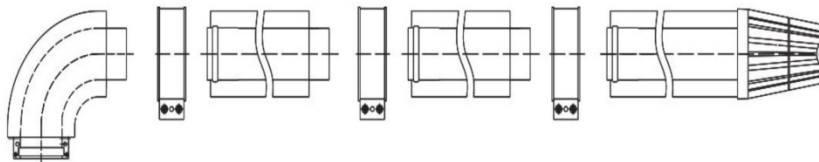
Water input and output ports should be equipped with couplings and valves, and water input lines should be equipped with suitable filters.

Installation of Flue Pipe

- Only specially equipped, Termodinamik approved original flue connection elements must be used.
- The flue pipe assembly must have an angle of 1-3 ° upward to drain the condensate.
- The flue pipe must open to external space.
- In case flue extension pipe is used, all connections elements must be rendered leak-proof to prevent leakage of flue gasses into the spaces where the pipe travels through.



Elongated Flue Pipe 2



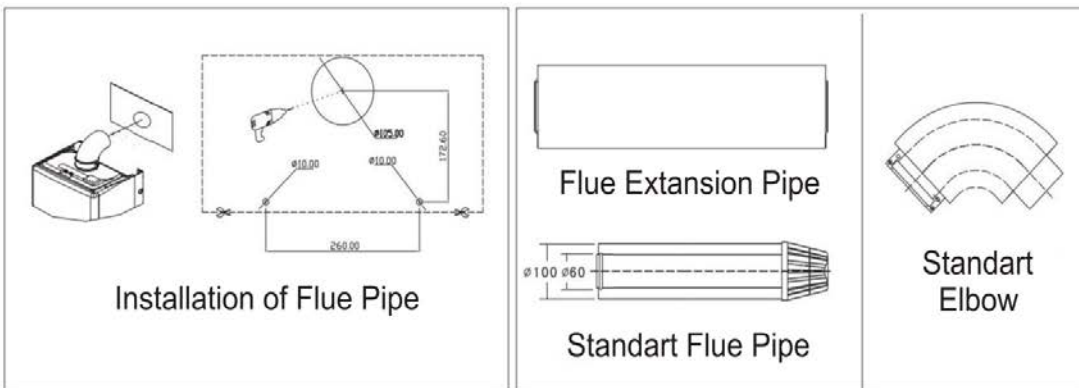
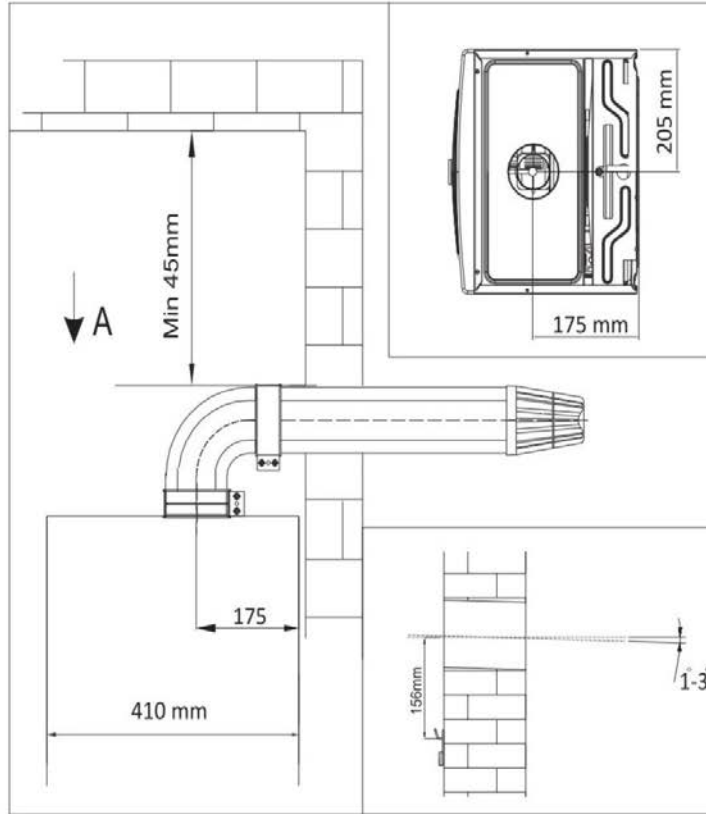
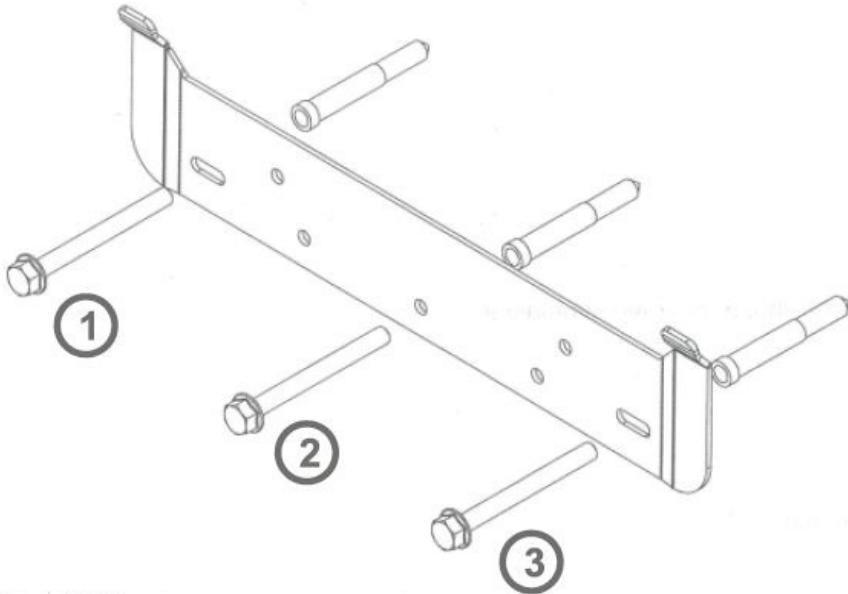
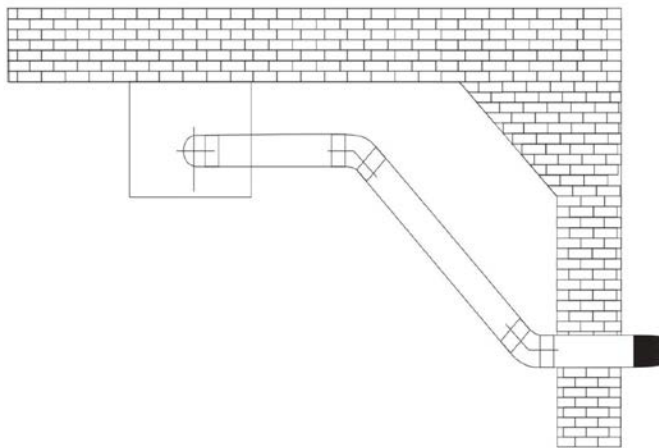
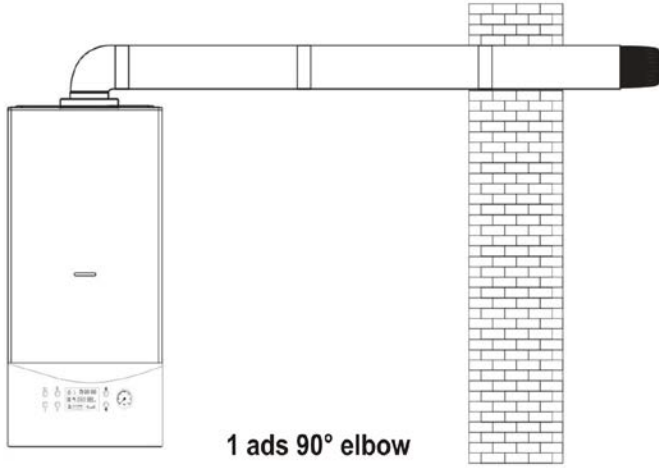


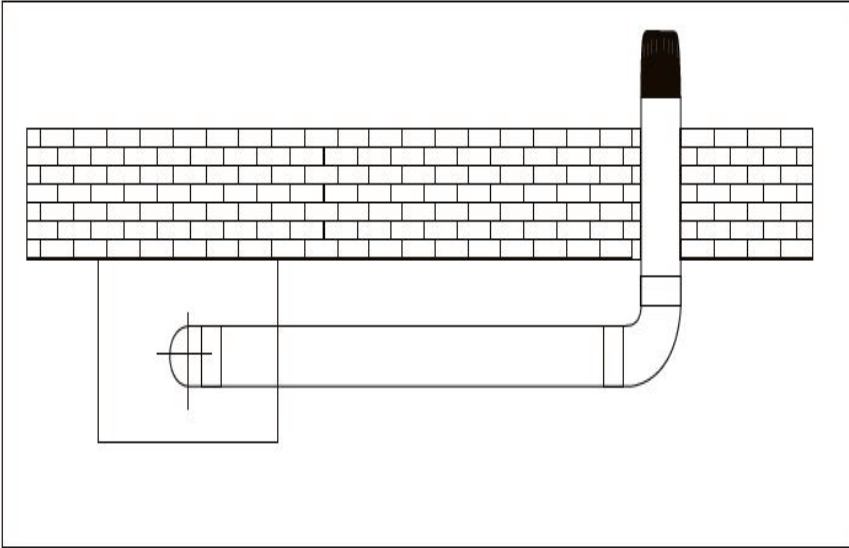
Plate Assembly



1. The installation plate is placed according to the figure.
2. Holes and flue pipe outlets are to be fixed.
3. D10 holes are to be drilled and the dowels are used.
4. Fixing anchors 1, 2, 3 are fixed to the wall.

Appropriate Flue Configurations





Before First Start-Up

Before first start-up compliance with the points listed below must be controlled.

- Leak-proofing performance of all gas and water connections must be compliant with the applicable laws and local regulations.
- The type of gas available in the intended space must be among the types specified on the product label, and the gas input pressure must be compliant with the value rated on the product label.
- There should not be any flammable or combustible material near the combi boiler.
- Compliance of power supply and grounding connections must be controlled.
- The air relief valve (purger) on the circulation pump must not be loosened.
- Air inside the radiators should be removed through their air relief valves (purgers).
- The flue pipe kit must be controlled to ensure correct installation.



In case the network pressure is above 6 bars, a pressure reducer must be used.

Filling the Heating System or Combi Boiler with Water

The water system of the boiler includes a water filling valve. The device cannot work safely as long as the heating system water pressure is under 1 bar. In this case the system will require additional water. In order to add water;

- Turn the boiler off and turn the power down.

- Control whether there is any water leak in the system and confirm that the system is completely offline.
- Open all radiator valves.
- Make sure that output and return valves of the boiler are open.
- Open water filling valve to add water..
- When the system water pressure reaches 1.0 to 1.5 bar level SHUT OFF the filling valve.
- Turn the boiler on.



Some air might enter the system when the system is being filled with water for the first time. Loosen the air relief valve (purger) on the pump to remove the air that might enter the system. When all air in the system is removed re-tighten the air relief valve (it is recommended to have this done by the authorised service personnel).

In case the heating system water pressure exceeds 3 bars the safety valve will discharge water. Therefore, power connection of the device must be removed to prevent any electrical hazards that might arise from water leakage during water filling operation.

Water drainage in the heating system

Open all valves of the boiler and heating system. Turn the safety valve cap to drain the water in an emergency.

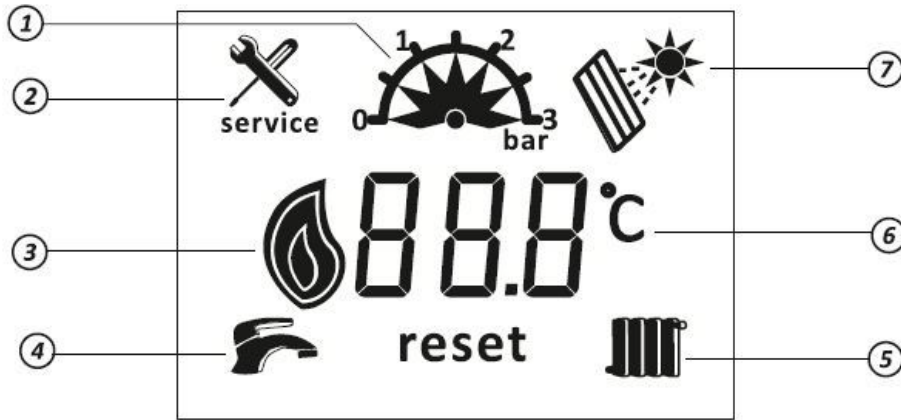
Installation of Outdoor Air Temperature Sensor

The outside air temperature sensor should be placed in a position that is not affected by the wind and the sun; should not be located close to the places where there is artificial heat source such as; pipeline, chimney, ductwork, etc. The outdoor sensor must never be placed in a location exposed to the sun.

Circulation Pump

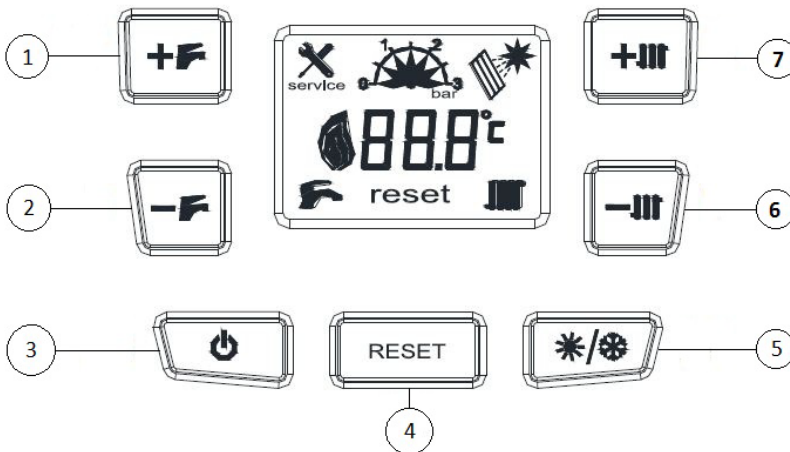
Your boiler is equipped with an automatic air vent on the circulation pump. The circulation pump automatically adjusts the speed according to the heating requirement. Thus, more efficient heating can be achieved at low temperatures.

TERMODENS LCD DISPLAY INSTRUCTION MANUAL



1	Water Pressure Ratio Indicator	5	CH Mode (Central Heating)
2	Service Required	6	Temperature Display
3	Burner Power Indicator	7	Solar Mode
4	DHW Mode (Domestic Water Heating)		

DESCRIPTION OF KEYS AND FUNCTION BUTTONS

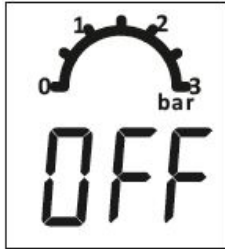


1	Domestic Water Temperature Control Button (+)	5	DHW / DHW-CH Mode Selection
2	Domestic Water Temperature Control Button (-)	6	Installation Water Temperature Setting Button (-)
3	ON/OFF Button	7	Installation Water Temperature Setting Button (+)
4	Reset Button		

Operating Modes

OFF Mode:

This mode is used to switch off the device.(button 3)

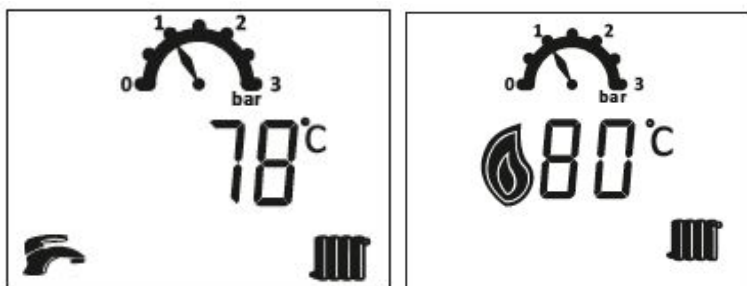


Winter Mode:

It is selected via button 5 on the control panel. When Winter mode is selected, the tap and radiator icon is displayed on the screen. After the winter mode is selected, the central heating is set to 20-80 ° C by pressing the 6 buttons to decrease 7 buttons to increase on the control panel. Pressing any of these keys can be increased or decreased by 1 ° C.

When heating starts in winter mode, only the radiator symbol and flame icon appear on the display. The size of the flame symbol refers to the operating power of the device..

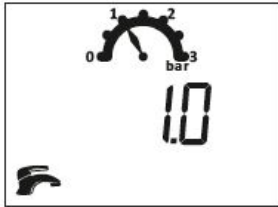
When the appliance is operating in winter mode, the unit enters the summer mode at the moment when the domestic water demand is requested and returns to the winter mode after it has met the hot water demand.



Summer Mode:

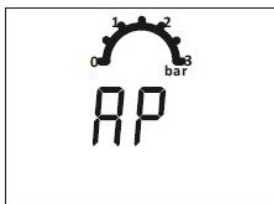
It is selected via button 5 on the control panel. When summer mode is selected, only the tap icon is displayed on the screen. After the summer mode is selected, the central heating is set to 35-60

° C by pressing the 6 buttons to decrease 7 buttons to increase on the control panel. Pressing any of these keys can be increased or decreased by 1 ° C.



Safety and Test Function

When the device is turned on, the AP shows up on LCD. When this shows up on the screen, the boiler does not heat, the fan operates at maximum speed for 120 seconds. At the same time, the circulation pump operates at 5-second intervals. The three-way valve circulates the water circulation between the central heating system and the domestic water at intervals of 30 seconds. As a result, air bubbles in the system are discharged from the circulation pump, this is important for the safety of the circulation pump and the heating efficiency in the installation.



The 120 seconds operation of the fan ensures that the gas in the boiler is discharged from the chimney to the outside if there is any gas leak inside the boiler. This ensures safety against a possible fire or explosion hazard during the initial ignition.

The situations the AP code can be seen in the screen except for combi boiler first startup:

1. When the device is switched on for the first time,
2. After the device performs a high temperature error (E03), after resetting,
3. After the F37 error occurred after the central heating system water pressure dropped below 1 bar, after the water filling process and the water pressure reached to 1-1.5 bar level,
4. After resetting to correct the F43 error.

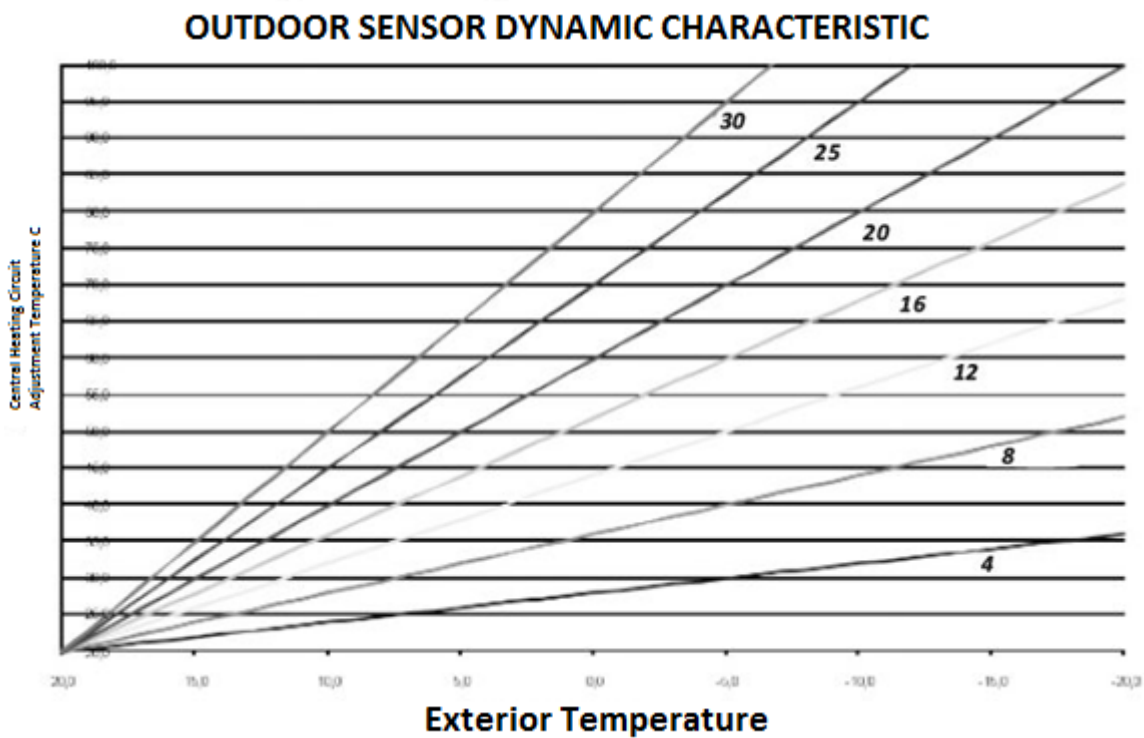
AP code shows up,

After this safety function, if the heating requirement is not desired, the device automatically puts itself into standby mode.

OUTDOOR SENSOR / USE WITH ROOM THERMOSTAT

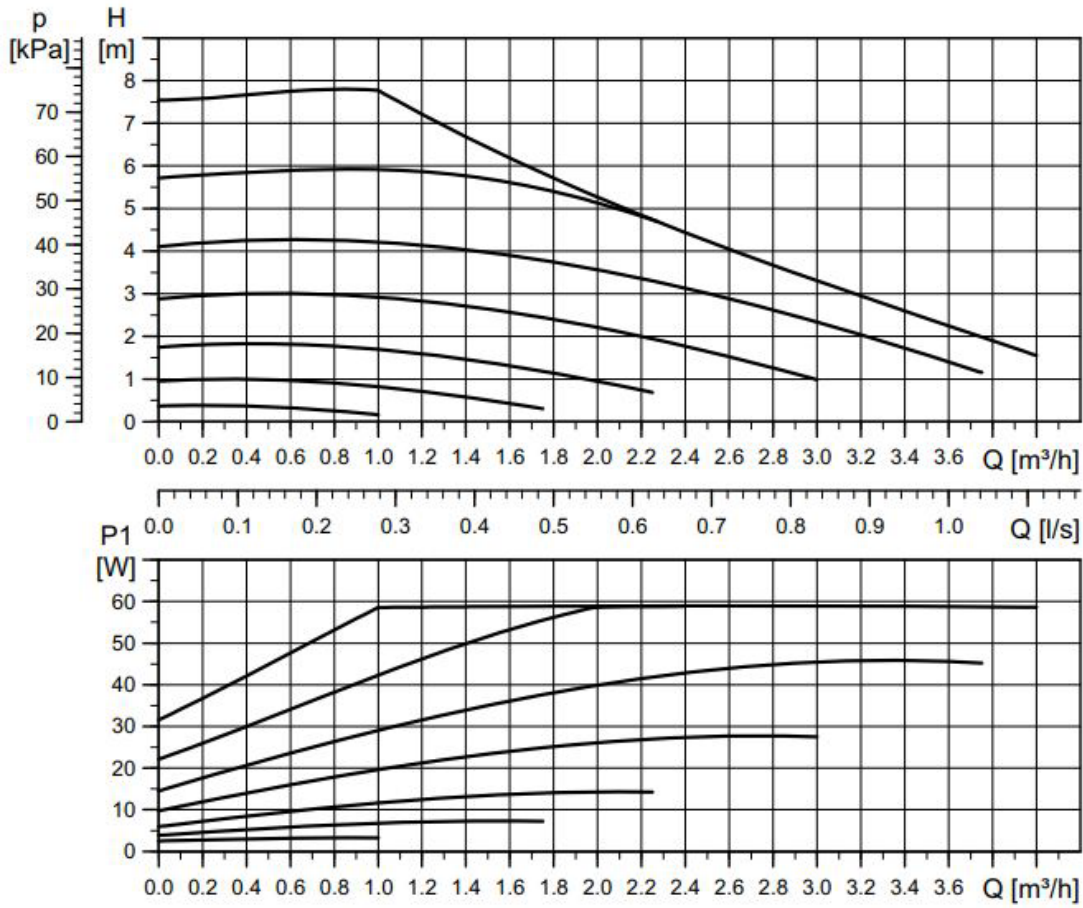
Operation with outdoor sensor

The sensor type can be used: 10 kohm @ 25°C B3435



Installation of the outdoor sensor to the device and adjustment of the operation according to the desired curve are performed by uthorized Services

Pump Curve



Error Codes

In case of device lockout, the error codes appear with "E" or "F". When the error code beginning with E appears, "Reset" or "Service" appears on the display. If the error code beginning with "F" is displayed, only the "Service" appears on the display. If the error should be solved by the service, then the related icon will appear on the display and If the error should be solved by the user then the "Reset" message will appear on the display.



ERROR CODE	ERROR DESCRIPTION	TROUBLESHOOTING
E01	Ignition Error	Check whether the gas line is open. Restart the device by pressing the reset button. Call the authorized service provider if the problem still exists.
E02	Flame Indicator Error	Restart the device by pressing the reset button. Call the authorized service provider if the problem still exists.
E03	Overheating Protection	Restart the device by pressing the reset button. Wait a while for the water in the appliance to drop below the overheating protection limit. Call the authorized service provider if the problem still exists.
E05	No fan frequency feedback after 1 minute left.	Restart the device by pressing the reset button. Call the authorized service provider if the problem still exists.
E08	Not requested flame level. Fault(s) at electrical components	Restart the device by pressing the reset button. Call the authorized service provider if the problem still exists.
E09	Valve feedback; not compatible with the controller.	Restart the device by pressing the reset button. Call the authorized service provider if the problem still exists.
E12	EEPROM reading interrupted	Restart the device by pressing the reset button. Call the authorized service provider if the problem still exists.
E15	Error on the motion sensor controls	Restart the device by pressing the reset button. Call the authorized service provider if the problem still exists.
E16	Error on the outlet water temperature sensor	Restart the device by pressing the reset button. Call the authorized service provider if the problem still exists.
E17	Error on the return sensor	Restart the device by pressing the reset button. Call the authorized service provider if the problem still exists.
E18	Broken sensor fails testing phase	Restart the device by pressing the reset button. Call the authorized service provider if the problem still exists.
E21	The error (Ade) on the analog digital converter	Restart the device by pressing the reset button. Call the authorized service provider if the problem still exists.

E33	Error on the return water temperature sensor	Restart the device by pressing the reset button. Call the authorized service provider if the problem still exists.
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ERROR CODE	ERROR DESCRIPTION
F07	Flue pipe gas temperature is too high
F13	Failed reset
F34	Low mains power
F37	Low water pressure
F39	Outside air sensor error
F40	Water pressure in the central heating circuit is too high
F41	Automatic water supply is working
F42	Automatic water supply unaccomplished
F43	Low water pressure at the automatic water supply
F47	Water pressure sensor not installed
F50	Domestic water (solar energy storage tank) sensor error
F51	PT1000 (solar panel sensor) temperature sensor error
F52	Domestic water sensor error
F53	Flue pipe gas sensor error
F81	Waiting for sensor deviation test

F07: This error will appear if the flue gas temperature is higher than the specified maximum temperature. The device puts itself on hold for 15 minutes, after 15 minutes if the temperature does not fall below that value, the device does not work, if it falls below the value continues to work. The error cannot be solved by resetting.

F13: This occurs as a result of failure of all resetting attempts made as a result of an error. Disconnect the device from the power supply, then reconnect it. Call the authorized service provider if the problem still exists.

F34: This error occurs when the mains voltage is less than 170 V. If the mains voltage does not exceed 170 V, the device will not operate.

F37: This error occurs when the water pressure in the device is less than 1 bar. To rectify the fault, water must be filled until the indicator level is between 1-1.5 bar as described in the page BBB. Call the authorized service provider if the problem still exists.

F39: The outdoor sensor is short-circuit or open-circuit. Call the authorized service provider if the problem still exists.

F40: This error occurs when the water pressure sensor reads high water pressure. Call the authorized service provider if the problem still exists.

F41-F42-F43: It includes automatic water supply to the device and errors during and after feeding. These errors will not appear as the device will set the water supply function to off at the factory setting. Call the authorized service provider if it becomes visible.

F50: It emerges when the domestic water (solar storage tank) sensor is a short circuit or open circuit. Call the authorized service provider if the problem still exists.

F51: It emerges when the PT1000 solar panel temperature sensor is caused by an open or short circuit. Call the authorized service provider if the problem still exists.

F52: It emerges when the domestic water temperature sensor is caused by an open or short circuit. Call the authorized service provider if the problem still exists.

F53: It emerges when the flue gas temperature sensor is caused by an open or short circuit. Call the authorized service provider if the problem still exists.

F81: The device is conducting a sensor deviation test to determine if a sensor is out of the measuring range. In this case, the device does not heat, only the pump operates. If the error cannot be remedied, call the authorized service provider