

# **DEK SERIES TOUCH SCREEN ELECTRIC COMBI BOILERS**

## **USER AND INSTALLATION MANUAL (12 kW - 40 kW)**





## Our dear customer;

Thank you for choosing our product and we wish you to use your device in good times. We want you to get the best out of your product. For this reason, we recommend that you read this manual carefully before you start using your product and keep it with the device as a reference for future reference.

This guide will help you use your device more efficiently and safely. For this reason, pay attention to the items we have mentioned below.

- Before using and operating the product, be sure to read the user manual.
- Follow the information and rules we provide regarding safe use.
- Please note that the user manual may also apply to other models. The differences between the models are clearly stated in the manual.

### **CAUTION**

Before assembling the device, on the page in the user manual;

- Assembly instruction
- Electrical connection warnings
- Read the warnings and information titled Matters needing attention.

The device is out of warranty due to installation and electrical connections made without paying attention to the relevant instructions, warnings and information.





## IMPORTANT

### SAFETY AND WARNINGS

- Only authorized services should work on the product.
- In case of misuse or improper use; may be life-threatening, and material damage may occur to the product or its surroundings.
- This product is intended as a heating device for the preparation of hot water for closed heating systems, as well as for obtaining hot water for use with its secondary heat exchanger.

### Intended use

- Consideration of the operating, installation and maintenance manuals supplied with the product and other components of the system.
- Installation and assembly of the product and system according to the assembly rules
- It is the fulfillment of all control and maintenance conditions in the manuals.
- Not suitable for any use other than or exceeding those described in this manual.
- Any direct commercial and industrial use is not suitable for its intended use.

### Attention!

Any kind of malicious use is prohibited.

*Before starting to work on the product;*

- Turn the product off by turning off all power supplies.
- Check that there is no voltage Wait at least 2 minutes until the entire load is discharged.
- There is a risk of death from electric shock if you touch live components, care must be taken.

### Risk of scalding from hot water

- Risk of scalding at hot water taps at a domestic water temperature of over 55 °C available. Small children or elderly people can be affected even by low temperatures. For this reason, it is appropriate to set the domestic water temperature at a level where no one will be disturbed.
- Do not place objects or other objects on the device.



## Assembly

- Use suitable tools for tightening or loosening union connections.
- Sprays, solvents, cleaning agents containing chlorine, paints, adhesives, ammonia compounds, powders, etc. substances can cause corrosion of the product.
- It should be ensured that chemical substances are not stored at the installation site.
- It is not suitable for installation in wet and humid environments.
- Applicable National instructions, standards, directives and laws, regulations must be taken into account in the selection and assembly of the assembly site.
- Install the necessary safety devices for the system.
- The cable cross-sections to be used in the assembly part of the booklet must be complied with.
- Appropriate voltage energy voltage specified in the manual should be used for the combi.
- Ensure that the voltage-energy coming to the combi is not variable, intermittent or fluctuating.
- The product should only be installed indoors.
- The installation location should be chosen in accordance with the line layout (water inlet and outlet).
- The product should not be installed near stairwells, emergency exits or air conditioning systems.
- The product should not be mounted on a device whose use would cause product damage. (for example, on a stove with an oil steam or water vapor outlet).
- The product should not be installed in areas where there is a risk of water inlet and flooding.
- Do not install the product in places where there is a danger of freezing.
- Connect the grounding cable to the product's grounding connection and to the appropriate grounding connection of the home installation, this way you will avoid short circuits to the product (eg due to water ingress).
- Be careful when using it at a sleeping place.
- Before the device is installed, the heating and hot water installations must be ready. The installation must have been designed, approved and made by an authorized engineering office. The expenses of all these operations belong to the user.
- Do not keep any objects, materials or other devices that may damage the device, or that may be damaged by the installation connections of the device, under, above or next to the location where the device is mounted.



## Fault

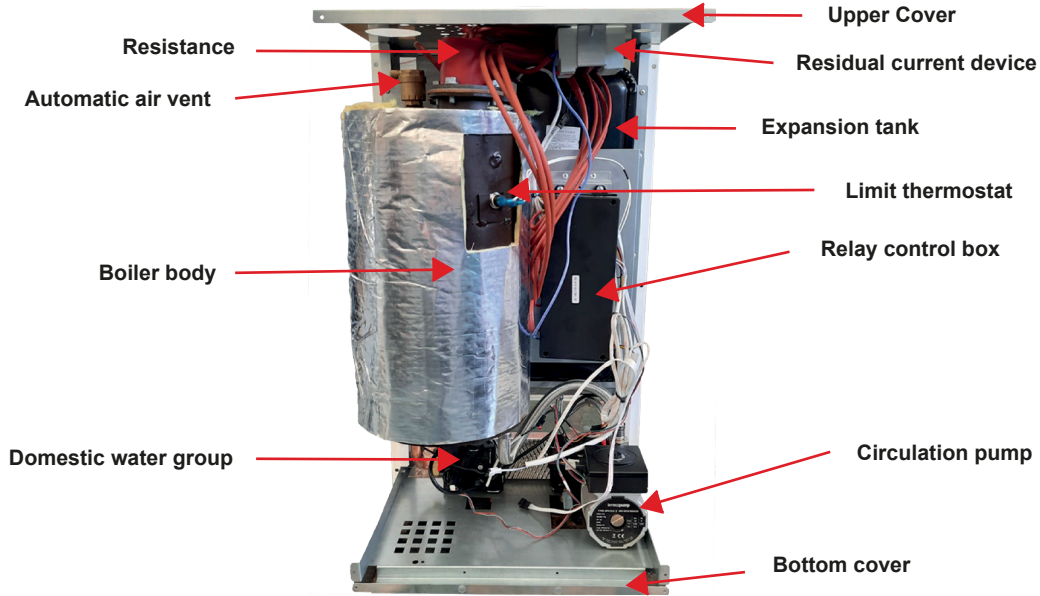
- You can find the Fault information titles on the screen in the user manual.
- If a fault occurs in the product, you can see it with a fault description on the screen.
- By looking at the fault information in the manual, you can try to correct the fault with guidance.
- If it is not possible to fix the fault, you can call Thermodynamic customer service.
- Take care to have a general inspection and maintenance every year. You may need to determine the frequency of your maintenance period depending on the results of the inspection. Maintenance operations must be done by Termodinamik Authorized Sales points.
- We recommend using original Termodinamik parts during maintenance or repair work.
- Have the necessary electrical installation prepared for the combi, but do not connect electricity in any way. Only Authorized Person is authorized to make the electrical connection of the device.
- After the assembly is completed and the device is ready for commissioning, make sure to have the device commissioned by the Authorized person.
- The strength of the wall on which the device will be mounted must be able to support the weight of the device. The wall should be thick enough.
- Your device must be mounted on a fireproof wall. If the wall is made of combustible material, the hanging surface points must be well protected with non-combustible material.

## Important information

- Please pay attention to the information in the manual about water hardness.
- Take care to have a filter in the installation line.
- Make sure that your installation pump connection is on the installation return line.



## Technical Specifications



### TRIPHASE

		DEK 12	DEK 14	DEK 18	DEK 24	DEK 30	DEK 36	DEK 40	MONOPHASE	
		DEK 12	DEK 14					DEK 12	DEK 14	
Capacity	kW	12	14	18	24	30	36	40	12	12
Operating pressure	bar	2	2	2	2	2	2	2	2	2
Radiator Round-Round	inch	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"	3/4"
Domestic Water Round-Round	inch	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2
Operating voltage	Volt	380	380	380	380	380	380	380	220	220
Fuse Strength	Amper	40 (Trifaze)	40 (Trifaze)	40 (Trifaze)	40 (Trifaze)	63 (Trifaze)	63 (Trifaze)	63 (Trifaze)	63 (Monofoze)	63 (Monofoze)
Packaged Weight	kg	32	33	40	40	41	41,5	43,5	32	33
Dimensions (Height x Width x Depth)	mm	723 x 425 x 321							723 x 425 x 321	
Cable cross-sections when the line length is 1-15 m	Adet/ mm <sup>2</sup>	5x6 TTR	5x6 TTR	5x6 TTR	5x10 TTR	5x16 TTR	5x16 TTR	5x16 TTR	3x10 TTR	3x10 TTR
Cable cross-sections when the line length is 16-30 m	Adet/ mm <sup>2</sup>	5x10 TT	5x10 TTR	5x10 TTR	5x16 TTR	EMO	EMO	EMO	3x16 TTR	3x16 TTR
Cable cross-sections when the line length is more than 30 m	Adet/ mm <sup>2</sup>	EMO	EMO	EMO	EMO	EMO	EMO	EMO	EMO	EMO

\* EMO: According to the wet signed installation project and project conformity certificate prepared by an Electrical Engineer with a visa from the Chamber of Electrical Engineers, the device can be started for the first time.

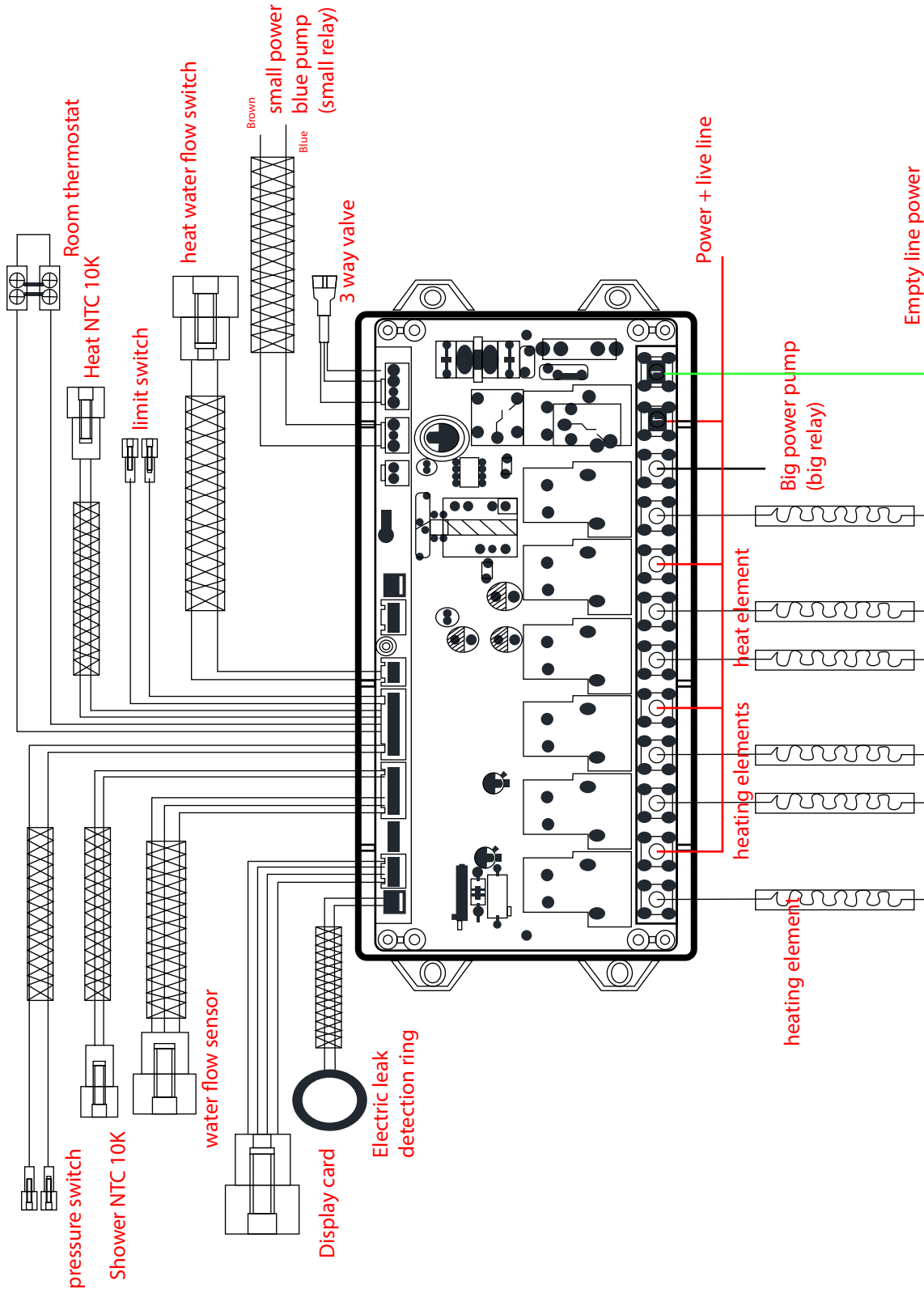
\* Line length must be taken from the meter.

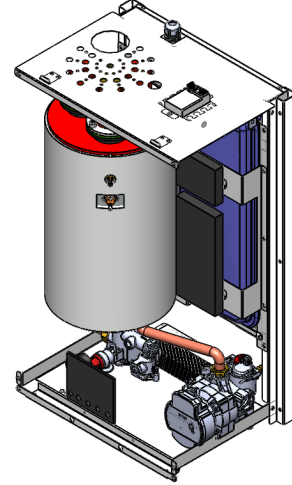
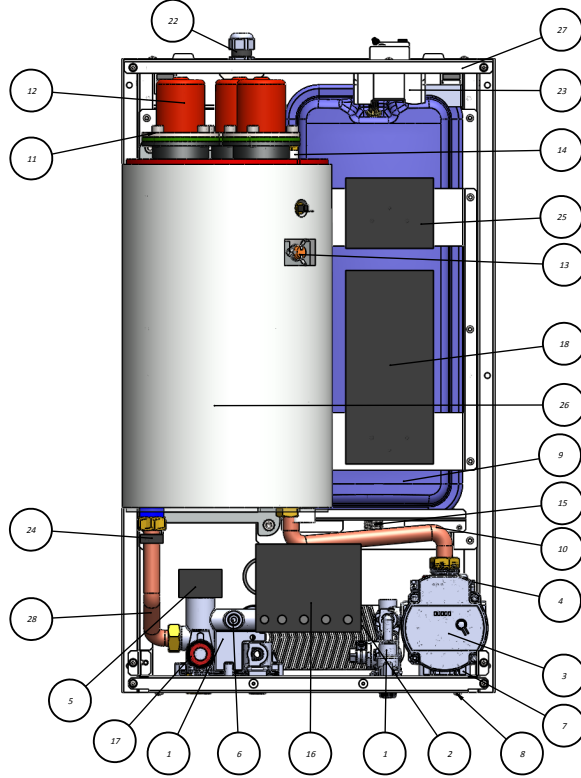
\* EITY (Electrical Indoor Installation Regulation) should be taken into consideration when planning the use of single-phase devices in homes.

\* We reserve the right to make changes in dimensions, prices and appearances.

**Electrical Wiring Diagram (12-14 kW - 2200V)**

**Electrical Wiring Diagram (12-14-18-24-30-36-40 kW - 380V)**



**Product Chart**
**DEK (12-14-18-24-30-36-40 kW)**


<b>1</b>	Water Group Input Output	<b>16</b>	Touch Panel
<b>2</b>	Plate Heat Exchanger	<b>17</b>	Automatic Safety Valve
<b>3</b>	Pump Body	<b>18</b>	Relay Box
<b>4</b>	Pump Cover	<b>22</b>	Automatic Air Vent
<b>5</b>	Three Way Valve Motor	<b>23</b>	Leakage Current Fuse
<b>6</b>	Water Pressure Sensor	<b>24</b>	Surface Sensor
<b>7</b>	Pump Ring	<b>25</b>	Relay Card
<b>8</b>	Chassis Pump Connection Plate	<b>26</b>	Internal Boiler Assembly
<b>9</b>	Expansion Tank	<b>27</b>	Thin Sheet Group
<b>10</b>	Boiler Inlet Pipe	<b>28</b>	Boiler Outlet Pipe
<b>11</b>	Heating Resistance		
<b>12</b>	Resistance Protective Plastic		
<b>13</b>	Limit Thermostat		
<b>14</b>	Thermocouple Tube		
<b>15</b>	Expansion Tank Hose		





## Filling the System with Water

- The filling-discharging valve connected on the radiator return valve is opened and water is taken into the installation. A mini ball valve with "3/4 T" is put into the packaging bag for use as filling and discharging.
- In order to remove the air inside the boiler during the first start-up process, water is pressed until the water comes from the safety valve of the device at 3 bar. After making sure that the air of the system has been purged, water is discharged from the safety valve until 1.5 bar is read on the digital manometer on the instrument panel.



When the manometer value drops below 1 bar, the system is recharged with water. If water shortage is observed in the device for any reason, adding water to the device should be done while



- It should be considered that water with high hardness will cause calcification. Defects and performance degradation caused by calcification,
- Use of the device in different areas (industrial use, etc.) apart from the technical specifications, problems caused,
- Problems arising from the use of water other than domestic water (artesian water, waste water, etc.).

It is out of warranty.



- Hot water produced by this appliance may cause scalding. This risk is greater for children and the elderly when the hot water temperature produced exceeds 52 °C.
- Before starting a shower or bath, feel the temperature of the water and enter it. In such cases, hot it is recommended to use limiting valves.

## General Information

- The water pressure switch on the combi boiler provides safety by cutting off the electricity of the device in order to prevent the resistances from burning and scorching in case the water pressure in the combi drops to 0.6 bar, that is, the water decreases. (The device switches to the off state, the system continues to operate from where it left off by pressing water to operate it again.) Likewise, when water is pressed to the device for operation, when the water pressure reaches 3 bar, the system's automatic safety valve activates and empties the excess water in the system from the discharge hose.
- The regulating thermostat has features such as being adjustable to a maximum of 80 °C and cutting off the electricity going to the resistances when it reaches this temperature. In the event of a malfunction in the regulating thermostat, safety is provided with two thermostats, one digital and one mechanical limit thermostat. When the water temperature reaches 85 °C, the digital limit thermostat activates and turns off the heating system when the water temperature reaches 90 °C, preventing the temperature from rising.
- You can see the water pressure in the system at any time with the digital manometer. In case the pressure exceeds 3 bar, the protection safety valve opens, and some water is thrown out with the excess pressure.
- The device runs entirely on electricity as fuel.
- When the water pressure drops, the electricity to the resistances is automatically cut off.
- The system shuts down by detecting the leakage that may occur in the electrical current.





## Filling the System with Water

- Surrounding the electric combi boiler; Thanks to foiled glass wool in models with metal tanks and styrofoam in models with plastic tanks, energy losses are minimized. High-quality primer paint applied on the main body of the boiler and the inner surfaces, and the outer surfaces with the special coating on the thin sheets provide high resistance against rust.
- The expansion tank, which is mounted on the device, expands by filling the membrane against the gas pressure with the increase in the pressure in the installation. Thus, some of the fluid in the system is stored in the expansion tank under pressure. In case the pressure in the installation drops, the water in the closed expansion tank is pressed back into the installation thanks to the gas pressure outside the membrane. In this way, the installation works safely in terms of pressure.
- The hot water, which is heated in the combi chamber and sent to the radiators, passes through the plate heat exchanger and heats the water coming from the domestic water system. When the domestic water tap is opened, hot water is provided.

## General Warnings



### BİLGİ

- Never discharge water from your combi. If necessary, it should be done in a very short time by Thermodynamic Authorized Services. Do not empty the water inside the device during long-term stops (such as summer evening).
- The device is designed to produce hot installation water and domestic hot water for heating purposes. It is strictly forbidden to use it for other than the specified purpose. (Our company is not responsible for any malfunctions that may occur if the instructions given in the manual are not followed.)



- Improper operation of this product may result in life-threatening injuries, deterioration of device specifications and voiding of the warranty. It may cause you to stay. Please use the boiler only in accordance with the information in this manual.
- The manufacturer will not be held responsible in cases that may cause
- Only Thermodynamic Authorized Services are authorized for any intervention to the device.



- Flammable materials such as gasoline or paint thinner should never be used or stored near the device.

## General Safety Information

### 1. Residual Current Relay

When a leakage greater than 30 milliamperes and longer than 1 microsecond occurs in the system, it completely cuts off the energy of the system. (30 milliamperes is something that a human cannot feel)





• Regarding the Leakage Current Relay; If the fuse (reautomat) used previously in your installation also functions as a current relay or if a residual current relay is also used in the installation, DO NOT USE THE REOTOMAT THAT WE SENT TO YOU BEHIND THE COMBI! Because the rheomats sent to you also act as residual current relays and there should NOT be more than one residual current relay in the same installation! The rheomat-residual current relay, which is sent to you with the combi, is mounted inside the combi.

## 2. Mechanical Limit Thermostat

In case of an undesired and unexpected failure of the combi, if it cannot control the resistances digitally, resistance failure etc. By activating at 90-95°C in the figures, it ensures that the residual current relay is tripped and the system is completely de-energized.

## 3. Digital Limit Thermostat

If the boiler reaches 85°C when the mechanical limit thermostat does not perform its duty for an unexpected reason, the digital limit thermostat will activate, deactivate the resistances and turn the system off.

## 4. Water Level Sensor Control System

Thanks to the sensor, it is controlled whether the water in the combi boiler is at the highest point in the body. It is a protection system that prevents the body from being dehydrated.

## 5. Random Study Schedule

Thanks to this program, once the system reaches the set, the resistors are switched on and off in a random order, keeping the same resistor on all the time and preventing only one resistor from being worn out by working longer.

## 6. Freeze Protection

When the boiler water temperature drops to 6 degrees, the circulation pump activates and prevents the system from freezing.

## 7. Pump Protection

In cases where the circulation pump is not working, the circulation pump operates for 1 minute every 24 hours in order to prevent it from getting stuck due to calcification and corrosion.

## 8. Modulated Operation

The device can set the desired temperature value with  $\pm 1$  oC precision by consuming minimum energy. In this way, it provides both economical and comfortable heating.

## 9. Pump Operation Check

The device continuously checks the working status of the circulation pump thanks to its specialsoftware.



### 10. Temperature Probes Control

The device continuously checks the working status of the temperature probes thanks to its special software.

### 11. Domestic Water Preheat Function

The device keeps hot water in its tank continuously according to the adjusted domestic water level. Thus, when there is a demand for domestic water, it meets your hot water needs very quickly.

### 12. Mechanical High Temperature Fault

After the mechanical limit thermostat is activated due to excessive temperature, the device will give a warning as "XXoC limit thermostat error" for the purpose of informing the service when it is first turned on.

### 13. Temperature Probe Error

When there is any problem in the device caused by temperature probes (unplugged socket, calibration problem, etc.), it gives a warning as "temperature probe failure". When this warning appears, call Thermodynamic Authorized Services.

The transparent silicone hose coming out of the air vents should be connected to the water drain together with the copper pipe of the safety valve discharge



#### **RISK OF ELECTRIC SHOCK**

Do not try to open or repair the device yourself.

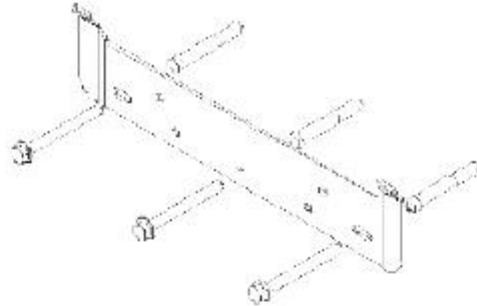
- For the repair and maintenance of the device, call the AUTHORIZED PERSON
- Never interfere with the electrical connections of the device for any reason.
- Make sure to operate the device with an earthed socket. Do not use damaged sockets and power cords.
- A discharge hose connected to the pressure relief device must be installed permanently down and in frost-free environments.
- Only the original equipment that came out of the product packaging should be used in the plumbing connections of the device. Old, used, worn hoses should never be used.
- If the power cord is damaged, it must be replaced by our company or AUTHORIZED PERSON to prevent a dangerous situation.



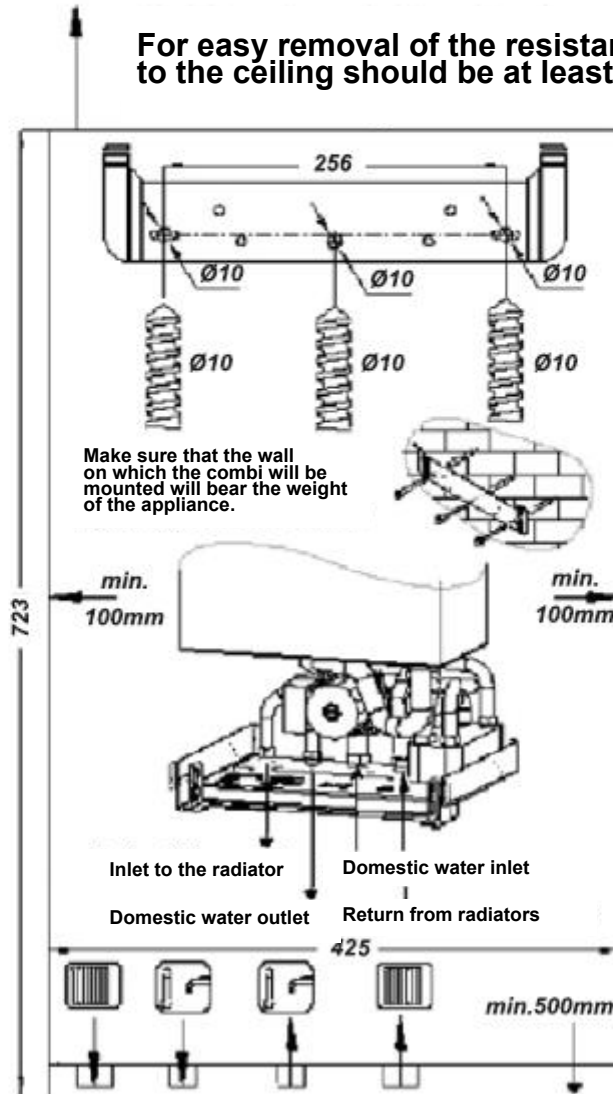
## MATTERS TO BE CONSIDERED AT THE INSTALLATION AND FIRST STARTING OF THE DEVICE

- Installation and first start-up of the device must be done by AUTHORIZED PERSON
- In order to provide proper service to the device, your device should be hung on a solid and stable wall in such a way that it does not come into brick cavities and on a scale. The ground clearance must be minimum 500 mm and the distance between the ceiling and the ceiling must be minimum 400 mm.
- Do not use the device in humid environments and do not install it in such environments (bathroom etc.).
- Connect the inlet and outlet pipes of the device from the lower connection unions as in the device connection diagram. Make sure that there is not the slightest drop of water.
- Pump, device flow-return and safety flow-return pipes must be installed in such a way that no air pockets are formed. An air tube or an air evacuation system must be placed in areas where there may be air entrapment.
- After the installation of the device and the installation is completed, the system must be filled and emptied twice and the installation must be washed. Thus, the flax parts and welding burrs inside the pipes are cleaned.
- Do not forget to close the inlet and outlet valves of the device while the system is being washed.
- Be sure to insulate the pipes passing outdoors to minimize heat losses.
- It is recommended to use a radiator return valve instead of a radiator valve in radiator returns. In installations where a radiator return valve is used, it is possible to regulate and protect this regulation.
- Make sure to use all the dowels and bolts supplied with the mounting kit so that the wall on which you will mount the device can support the device.
- Make the electrical installation of your device compatible with the specifications of TEK and the device.
- This product should be installed in places that are not affected by wind and rain. The place where the product will be placed is the most important point in the installation. After reading the installation instructions, choose a location for the product at a certain height from the ground, with easy access to electricity and connections. To prevent water loss in pipes, the product should be close to the place of use.
- Heating and decomposition of chemicals in ambient air can lead to instrument corrosion and component failure. (Typical examples of these potentially corrosive compounds are: sprays, cleaning solvents, refrigerator and air conditioner refrigerants, swimming pool chemicals, calcium and sodium chloride, polish and process chemicals. These materials are corrosive at very low concentrations and their presence is too weak to be felt. are odorless or odorless.

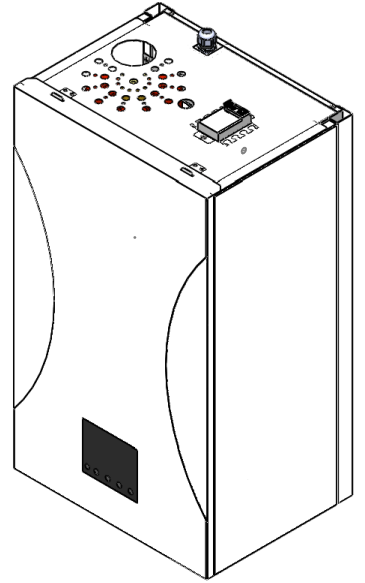
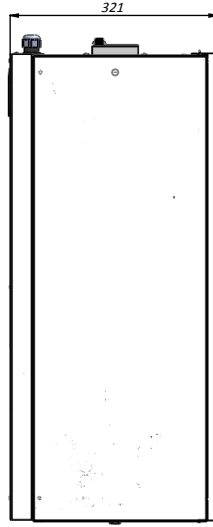
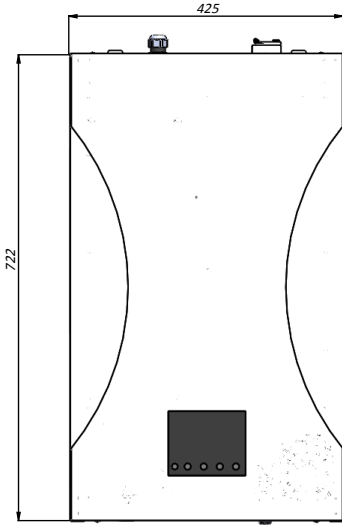
## Wall Mounting of the Device



For easy removal of the resistances, the distance to the ceiling should be at least 400 mm.



## Device Connections



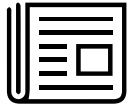
**Height : 722mm**

**Width: 425 mm**

**Depth : 321 mm**

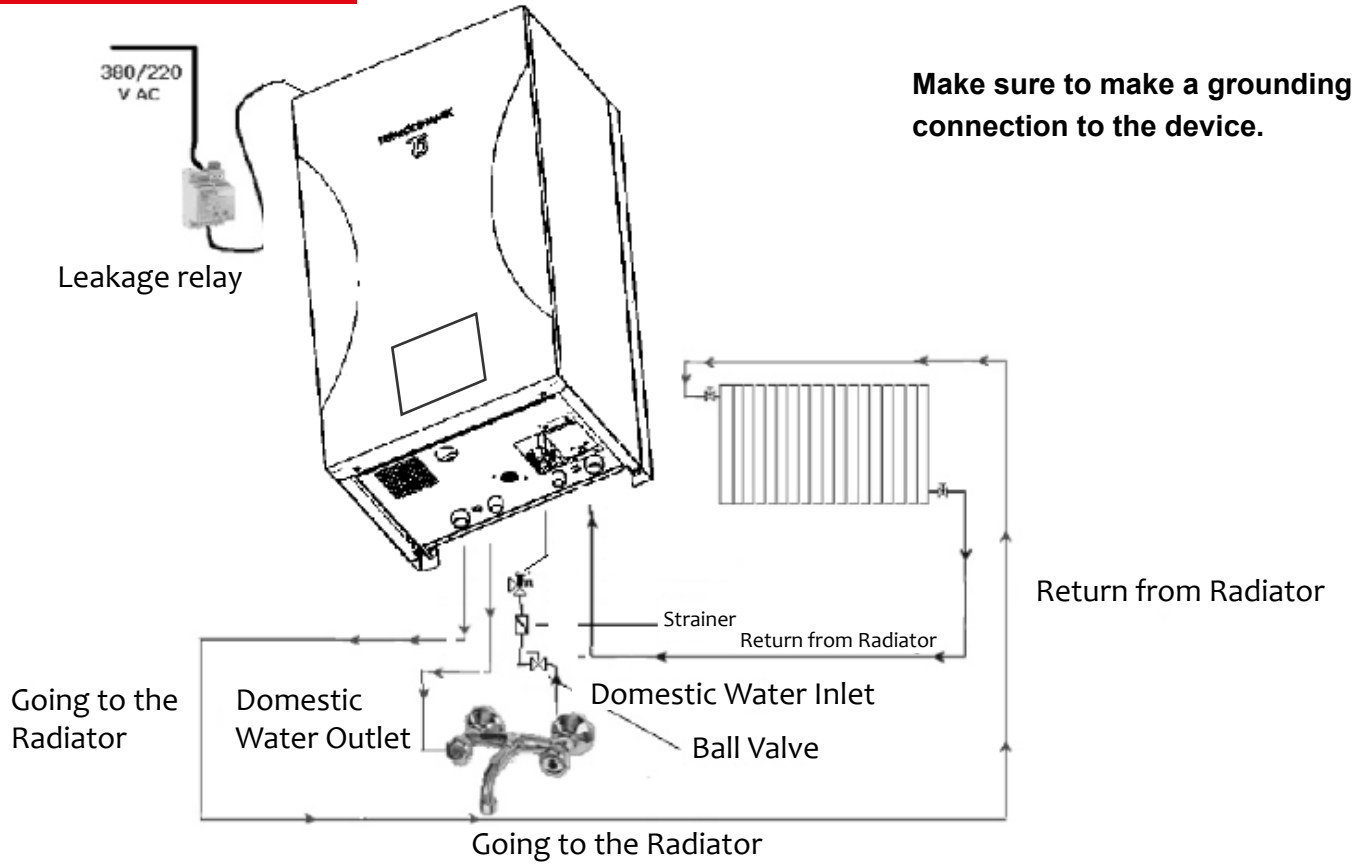
**Radiator Round-Return ( 3/4" )**

**Domestic Water Inlet-Output ( 1/2 " )**



Device; must be mounted in accordance with the assembly diagram given in the card board package. A gap of at least 400 mm should be left between the pan for easy disassembly and removal of the resistances while the appliance is suspended. (Thermodynamic Authorized Services)

## Details on Installation



• Radiator Flow-Return and Domestic Water Input-Output connection in the plumbing connection of the device; possible it is recommended to install a ball valve in terms of fault response and quickness of the repair process.

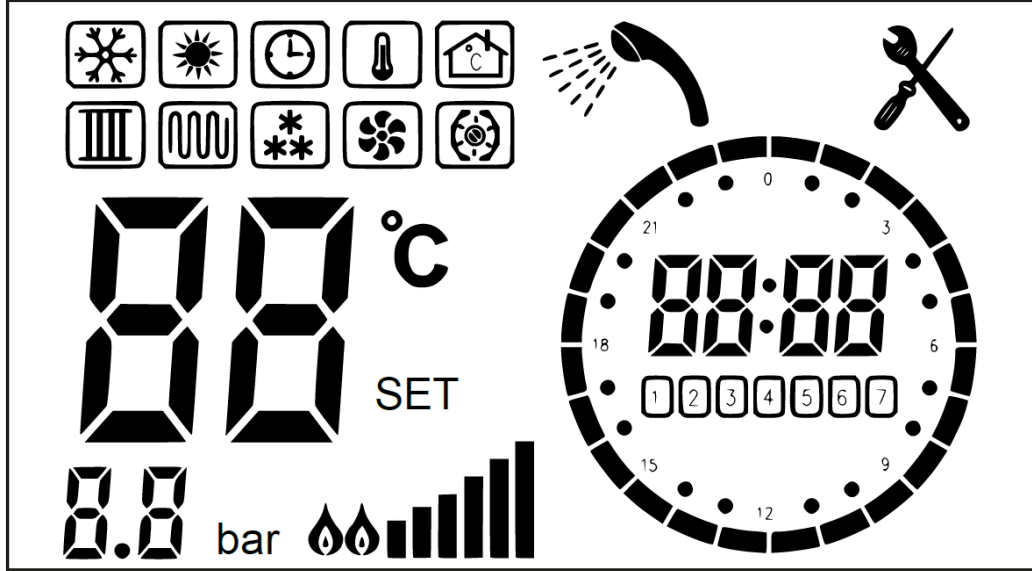








• The first start-up of the device must be under the supervision of the authorized service.



• Only authorized service should be allowed to intervene the device in case of possible malfunctions.



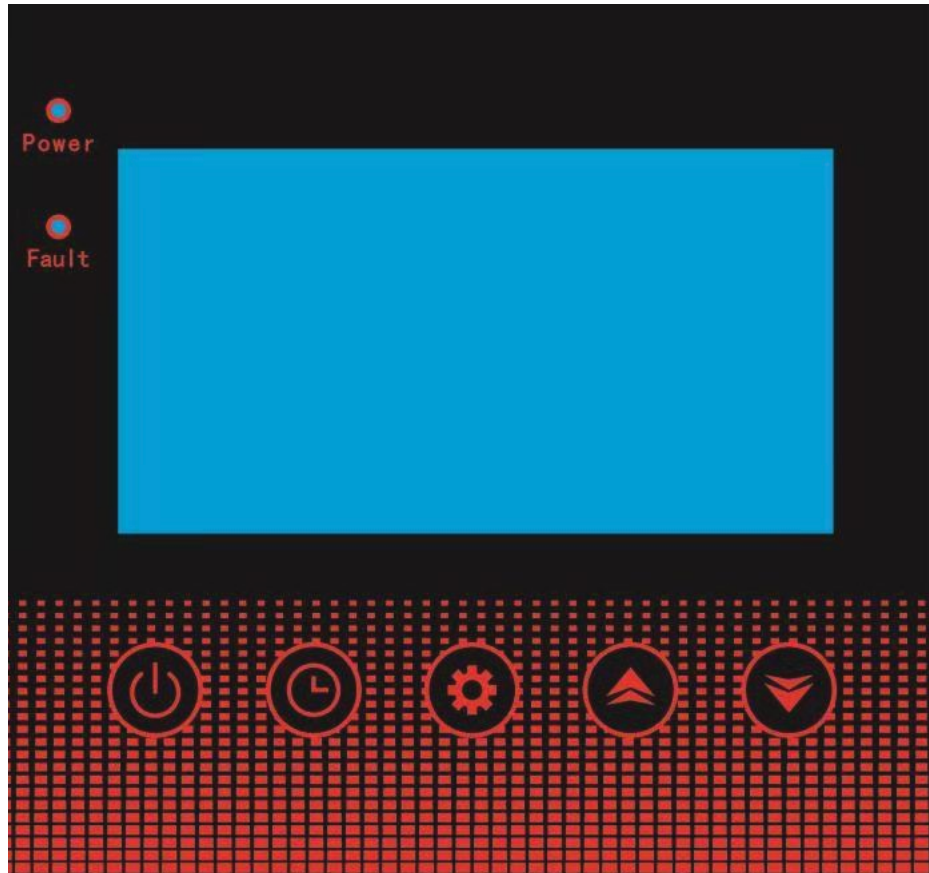
**DEVICE CONTROLLER**


Symbol	Description
	Indicates that the boiler is operating in timer mode.
	Indicates that the combi is operating in domestic water mode.
	Indicates that the pump is running.
	Indicates that the room thermostat is connected and closed contact.
	Indicates that the boiler is operating in heating mode.
	Displayed when underfloor heating is selected.



	<p>It shows the domestic water temperature in domestic water mode, the heating water temperature in heating mode, and the set temperature in temperature setting mode. If there is a malfunction in the device, it will flash and show the malfunction code.</p>
	<p>Indicates that the device is operating in program mode and operating hours.</p>
	<p>It is displayed when the timer mode is active or when the weekly program is selected.</p>
	<p>It shows the pressure of the installation water.</p>

## USING THE SCREEN





Button	Description
	Turns the device on or off, if the device is in the setting mode, it saves the entered value and exits the setting mode.
	It is pressed to increase the value.
	Press to enter settings.
	It is pressed to decrease the value.
	Activates or deactivates the operation according to the timer.

## SETTINGS

### 1. Adjusting Shower Water Temperature

Once the device is on Press the button. symbol will appear. and keys Adjust the temperature between 35°C and 60°C using When the key is pressed, the entered value is saved and the heating water temperature setting is switched.



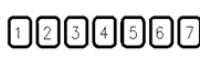







### 2. Adjusting Heating Water Temperature

When the device is on and in winter mode or pressing one of the keys, direct heating water enters the option to set the temperature. In this case the screen symbol will flash. And Adjust the desired heating water temperature between 30°C and 80°C by using the keys. Again Press the button to save the desired value.








### 3. Time and Date Settings




When the device is off when the key is pressed, symbol will start flashing. and The minutes are set first using the keys. When the button is pressed again, the clock is set and again The time is set using the keys. Press the button again to switch to the day setting. In this case symbol starts flashing. By pressing the keys, the day is set between 1 (Monday) and 7 (Sunday). Pressing the key saves the entered values and exits the setting.

#### 4. Weekly Timer Setting

Once the device is on  Press the key to enter the weekly timer setting. In this case  or  symbols start flashing.   The day of the week (from 1 for Monday to 7 for Sunday) is selected using the keys.  By pressing the key, operating period setting is entered.  symbol starts flashing.  By pressing the key, the working time is set.  By pressing the button, the next working hour is set. When the setting is complete.  By pressing the button again, the settings are saved and the setting menu is exited.

#### 5. Parameter Settings

When the device is on  If the key is pressed for 5 seconds, parameter settings menu is entered.  or  By pressing the keys "18" code is selected on the screen. While the "18" code is  ected on the screen  the parameter list is accessed by pressing the key.  or  Press the keys to switch between parameters.

When the abbreviation of the parameter to be changed is reached, it will be repeated.  key is pressed and this parameter setting is activated. The desired value is entered according to the values specified in the table below and the corresponding setting,  key is pressed and this parameter setting is activated. The desired value is entered according to the values specified in the table below and the corresponding setting,  Pressing the key exits the parameter settings menu.

#### System Parameters Table

PARAMETER CODE	PARAMETER NAME	VALUE RANGE	DEFAULT DESER	EXPLANATION
CH	Heating water return temperature difference	10°C ~ 30°C	10°C	When the set heating water temperature and the return water temperature exceed this difference, heating is restarted starts.
HE	Heating temperature upper limit	60°C or 80°C	60°C	60°C for underfloor heating and 80°C for radiator type heating.
BH	Heat exchanger type	0 or 1	0	0: Separate heating unit for shower water heating 1: Plate type heat exchanger
SL	Pressure sensing type	0, 1 or 2	0	0: Pressure switch 1: No detection 2: Pressure sensor
Fb	Domestic water flow detection type	0 or 1	0	0: Flow sensor °C 1: Flap type sv inside
Sb	Pump operating mode	0 or 1	0	0: Pump runs for 3 minutes, stops for 7 minutes. 1: The pump runs continuously.
Bn	Heating temperature control type	0 or 1	1	0: Runs up to 5°C above the set heating temperature, then stops. 1: Runs up to the set heating temperature, stops, starts again after 3 minutes.
Du	Dry heating detection	2°C ~ 20°C	10°C	If the temperature increase per second is higher than this value, it gives a dry heating error.
UU	Abnormal temperature detection	0°C ~ 5°C	2°C	Unusual temperature error if the temperature rise is below this value for the time indicated by "Dd" gives.
Dd	Abnormal temperature detection time	6S ~ 90 Second	30 Second	If the temperature rise specified by UU does not occur during the time specified by this parameter, it is normal gives an outside temperature error.
Fd	Valve control	0 or 1	0	0 : No valve control 1 : There is valve control
dn	Heating type	0 or 1	0	0 : DHW and installation heating 1 : Only installation heating
Hn	Maximum number of heating units	0 ~ 9	6	Controlled heating unit limit

#### Controlled heating unit limit

ERROR CODE	SOURCE	REASON
E0	Pump	The pump is running, but there is no water flow.
E2	Limit switch	Limit switch tripped due to overtemperature.
E4	Water pressure	The water pressure sensor is faulty or the water pressure is out of the range of 0.4 bar ~ 4.5 bar.
E5	Electrical phase	380V phase fault.
E6	Shower NTC	Shower NTC is faulty or sensed temperature is above 75°C.
E7	Heating NTC	Heating NTC is faulty or sensed temperature is above 93°C ..
E8	High temperature	The temperature detected by any NTC is above 95°C.
E9	Frost protection	Heating water temperature is below 0°C.
EA	Room thermostat	Room thermostat disconnected.
En	Continuous operation protection	The shower water heating function has been on for more than 58 minutes.
EC	Screen	Display is faulty or disconnected.



## ERRORS / WARNINGS

### ERRORS

#### Boiler (lower probe) Error

If the sensor (probe) measuring the boiler water temperature fails, this error is seen. This sensor is the pipe-mounted type. This error stops the device.

#### Usage Water Probe Error

If the sensor (probe) measuring the temperature of the tap water fails, this error is seen. This sensor is mounted on the water group. This error stops the device.

#### Boiler (upper probe) Error

If the sensor (probe) measuring the boiler water temperature fails, this error is seen. This sensor is boiler immersion type. This error stops the device.

#### High Temperature

When the boiler water temperature reaches 85 degrees at the upper point, the Digital High Limit activates and causes a high temperature error and cuts off the electricity of the device to the resistances. When the boiler temperature drops below 85 degrees, the system continues to operate without fail.

### WARNINGS

#### Make Timer Setting

If the TIMER ON button is pressed without setting the timer, this warning is displayed. The timer must be set.

#### Device in Summer Mode

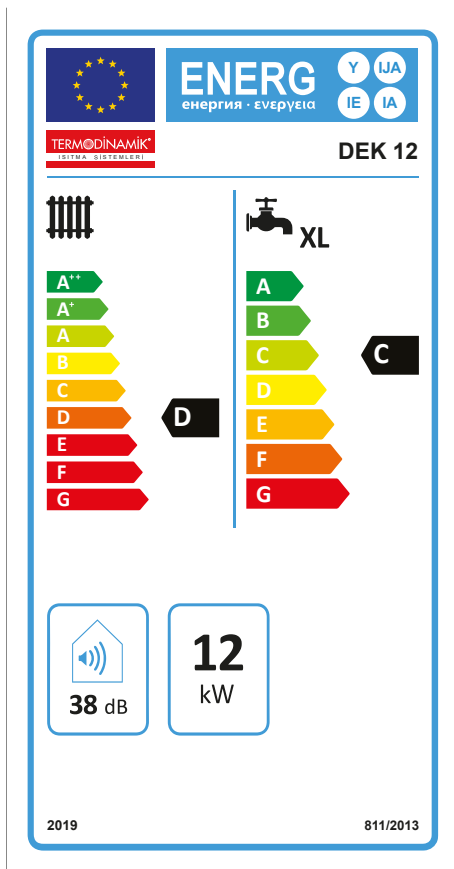
If the TIMER ON button is pressed while the device is operating in summer mode, this warning is displayed. Switch the device to WINTER mode with the SUMMER/WINTER button and then press the TIMER ON button.

#### Device in Timer Mode

When the device is in timer mode, that is, the light next to the TIMER ON button is on; If you want to switch to SUMMER mode with the SUMMER/WINTER button, this warning is displayed. With the TIMER ON button, the device should be taken out of the timer mode and then it should be put in the SUMMER mode.

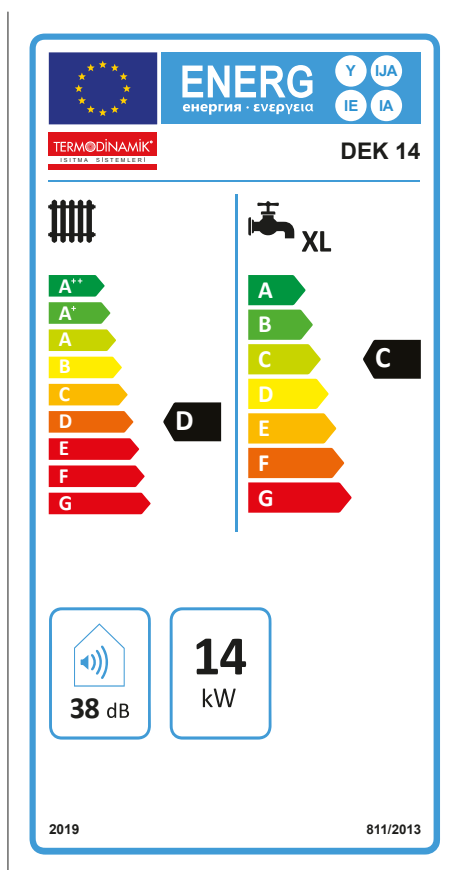
## OPERATING THE DEVICE

The energy cables of the device are installed, the phase and neutral cables are in the right place and the grounding is made correctly, and if necessary, it is checked several times. Since a mechanical high-temperature circuit breaker system is added to the devices, correct connection of grounding, neutral and phases is very important. The operation of these systems and the system security depend on the correct connection.

**ERP Fact Sheet**
**DEK 12**


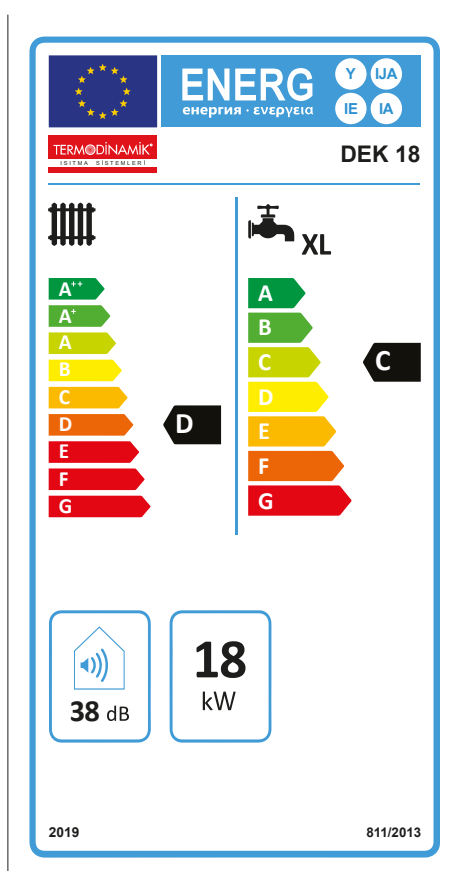
SPECIFICATION	Units	MODEL
		DEK 12
Product Name	-	Electric Boiler
Brand	-	Termodinamik
Declared Load Profile for Water Heating	Q <sub>ref</sub> = 19,07	XL
Seasonal Space Heating Energy Efficiency Class		D
Water Heating Energy Efficiency Class		C
Rated heat output (Prated or Psup)	kW	12
Space heating - Annual energy consumption	Q <sub>HE</sub> GJ	38
Water heating - Annual energy consumption	kWh	2350
Seasonal space heating energy efficiency	%	37
Water heating energy efficiency	%	40
Sound power level, L <sub>WA</sub>	dB	38
Special precautions for assembly, installation and maintenance	Before any assembly, installation or maintenance, the user and installation manual should be read carefully and the instructions should be followed.	
All data contained in the product information have been determined by applying the specifications of the relevant European directives. Product information listed in different places may result in different test conditions. Only the data contained in this product information is valid.		

Declared Load Profile for Water Heating			XL
Rated heat output	P <sub>rated</sub>	kW	12
Useful heat output at rated output and high temperature regime <sup>(2)</sup>	P <sub>4</sub>		11,6
Useful heat output at 30% of rated heat output and low temperature regime (partial load) <sup>(1)</sup>	P <sub>1</sub>		3,2
<b>Seasonal Space Heating Energy Efficiency</b>	η <sub>s</sub>	%	37
Useful efficiency at rated heat output and high temperature regime <sup>(2)</sup>	η <sub>4</sub>	%	38
Useful efficiency at 30% (partial load) of rated heat output and low temperature regime <sup>(1)</sup>	η <sub>1</sub>	%	37
<b>Electricity consumption</b>			
Energy consumption at full load	el <sub>max</sub>	kW	0,065
Energy consumption at partial load	el <sub>min</sub>	kW	0,30
Energy consumption at standby	P <sub>sb</sub>	kW	0,005
<b>Other</b>			
Standby heat loss	P <sub>stby</sub>	kW	0,120
Ignition burner energy consumption	P <sub>ign</sub>	kW	0,00
Space heating - Annual energy consumption	Q <sub>HE</sub>	GJ	38
Sound power level, L <sub>WA</sub> in the indoor environment	L <sub>WA</sub>	dB	38
<b>Water heating parameters</b>			
<b>Water heating - the declared load profile</b>			XL
Daily electricity consumption	Q <sub>elec</sub>	kWh	10,6
Annual electricity consumption*	AEC	kWh	2350
Water heating energy efficiency	η <sub>wh</sub>	%	40
Daily fuel consumption	Q <sub>fuel</sub>	kWh	-
Annual fuel consumption	AFC	GJ	-
Condensing combined heater			No
Low temperature application			No
Combined heater			Yes
Combined heater with type B1			No
Hermetic type combined heater			No
Auxiliary combined heater			No
All special precautions for installation and maintenance are described in the operating and installation manual. Read and follow the operation and installation manual. Read and follow the operating and installation manuals on assembly, installation, maintenance, disassembly, recycling and/or disposal.			
* for average climatic conditions			
(1) For condensing combined heaters: Low temperature means 30°C, low temperature means 37°C for boilers and 50°C return temperature (at the heater inlet) for other heaters.			
(2) High temperature regime means 60°C return water temperature at the heater inlet and 80°C outlet water temperature.			


**DEK 14**


SPECIFICATION	Units	MODEL
		DEK 14
Product Name	-	Electric Boiler
Brand	-	Termodinamik
Declared Load Profile for Water Heating	Q <sub>ref</sub> = 19,07	XL
Seasonal Space Heating Energy Efficiency Class		D
Water Heating Energy Efficiency Class		C
Rated heat output (Prated or Psup)	kW	14
Space heating - Annual energy consumption	Q <sub>HE</sub>	GJ
Water heating - Annual energy consumption	kWh	2350
Seasonal space heating energy efficiency	%	37
Water heating energy efficiency	%	40
Sound power level, L <sub>WA</sub>	dB	38
Special precautions for assembly, installation and maintenance	Before any assembly, installation or maintenance, the user and installation manual should be read carefully and the instructions should be followed.	
All data contained in the product information have been determined by applying the specifications of the relevant European directives. Product information listed in different places may result in different test conditions. Only the data contained in this product information is valid.		

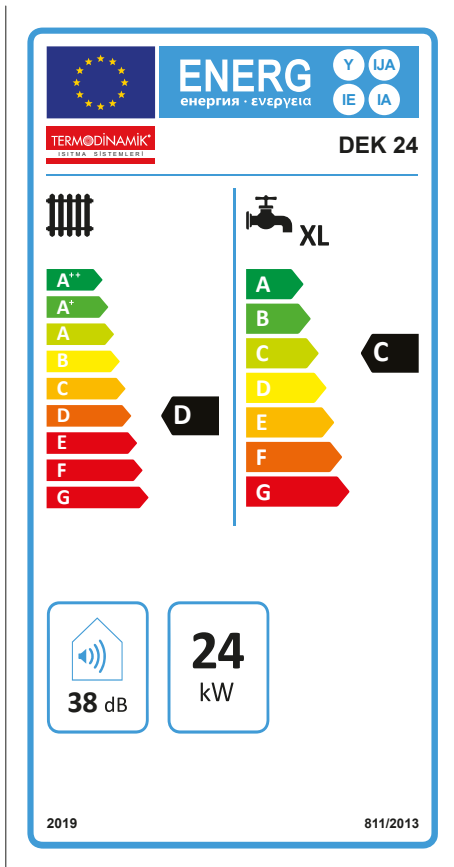
Declared Load Profile for Water Heating			XL
Rated heat output	P <sub>rated</sub>	kW	14
Useful heat output at rated output and high temperature regime <sup>(2)</sup>	P <sub>4</sub>		13,7
Useful heat output at 30% of rated heat output and low temperature regime (partial load) <sup>(1)</sup>	P <sub>1</sub>		3,5
<b>Seasonal Space Heating Energy Efficiency</b>	η <sub>s</sub>	%	37
Useful efficiency at rated heat output and high temperature regime <sup>(2)</sup>	η <sub>4</sub>	%	38
Useful efficiency at 30% (partial load) of rated heat output and low temperature regime <sup>(1)</sup>	η <sub>1</sub>	%	37
<b>Electricity consumption</b>			
Energy consumption at full load	el <sub>max</sub>	kW	0,065
Energy consumption at partial load	el <sub>min</sub>	kW	0,30
Energy consumption at standby	P <sub>SB</sub>	kW	0,005
<b>Other</b>			
Standby heat loss	P <sub>Stby</sub>	kW	0,120
Ignition burner energy consumption	P <sub>ign</sub>	kW	0,00
Space heating - Annual energy consumption	Q <sub>HE</sub>	GJ	44
Sound power level, L <sub>WA</sub> in the indoor environment	L <sub>WA</sub>	dB	38
<b>Water heating parameters</b>			
<b>Water heating – the declared load profile</b>			XL
Daily electricity consumption	Q <sub>elec</sub>	kWh	11,4
Annual electricity consumption*	AEC	kWh	2550
Water heating energy efficiency	η <sub>wh</sub>	%	40
Daily fuel consumption	Q <sub>fuel</sub>	kWh	-
Annual fuel consumption	AFC	GJ	-
Condensing combined heater			No
Low temperature application			No
Combined heater			Yes
Combined heater with type B1			No
Hermetic type combined heater			No
Auxiliary combined heater			No
All special precautions for installation and maintenance are described in the operating and installation manual. Read and follow the operation and installation manual. Read and follow the operating and installation manuals on assembly, installation, maintenance, disassembly, recycling and/or disposal.			
* for average climatic conditions			
(1) For condensing combined heaters: Low temperature means 30°C, low temperature means 37°C for boilers and 50°C return temperature (at the heater inlet) for other heaters.			
(2) High temperature regime means 60°C return water temperature at the heater inlet and 80°C outlet water temperature.			

**DEK 18**


SPECIFICATION	Units	MODEL
		DEK 18
Product Name	-	Electric Boiler
Brand	-	Termodinamik
Declared Load Profile for Water Heating	Q <sub>ref</sub> = 19,07	XL
Seasonal Space Heating Energy Efficiency Class		D
Water Heating Energy Efficiency Class		C
Rated heat output (Prated or Psup)	kW	18
Space heating - Annual energy consumption	Q <sub>HE</sub> GJ	54
Water heating - Annual energy consumption	kWh	2350
Seasonal space heating energy efficiency	%	37
Water heating energy efficiency	%	40
Sound power level, L <sub>WA</sub>	dB	38
Special precautions for assembly, installation and maintenance	Before any assembly, installation or maintenance, the user and installation manual should be read carefully and the instructions should be followed.	
All data contained in the product information have been determined by applying the specifications of the relevant European directives. Product information listed in different places may result in different test conditions. Only the data contained in this product information is valid.		

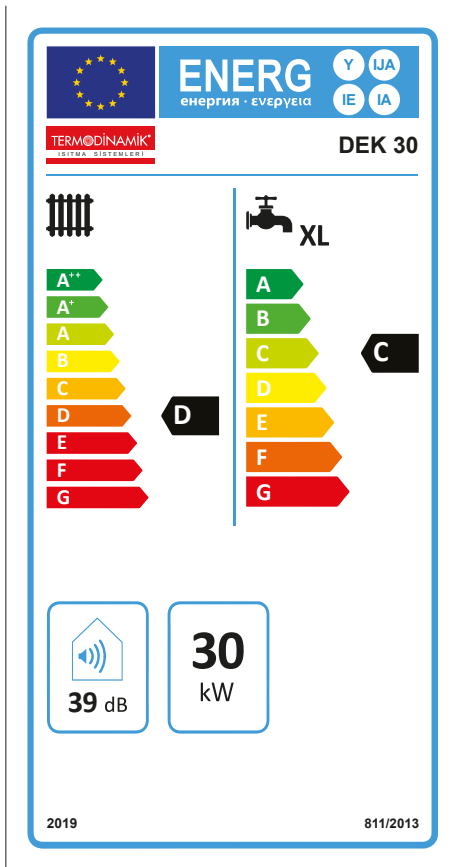
Declared Load Profile for Water Heating			XL
Rated heat output	P <sub>rated</sub>	kW	18
Useful heat output at rated output and high temperature regime <sup>(2)</sup>	P <sub>4</sub>		17,7
Useful heat output at 30% of rated heat output and low temperature regime (partial load) <sup>(1)</sup>	P <sub>1</sub>		3,8
<b>Seasonal Space Heating Energy Efficiency</b>	η <sub>s</sub>	%	37
Useful efficiency at rated heat output and high temperature regime <sup>(2)</sup>	η <sub>4</sub>	%	39
Useful efficiency at 30% (partial load) of rated heat output and low temperature regime <sup>(1)</sup>	η <sub>1</sub>	%	37
<b>Electricity consumption</b>			
Energy consumption at full load	el <sub>max</sub>	kW	0,065
Energy consumption at partial load	el <sub>min</sub>	kW	0,30
Energy consumption at standby	P <sub>sb</sub>	kW	0,005
<b>Other</b>			
Standby heat loss	P <sub>stby</sub>	kW	0,120
Ignition burner energy consumption	P <sub>ign</sub>	kW	0,00
Space heating - Annual energy consumption	Q <sub>HE</sub>	GJ	54
Sound power level, L <sub>WA</sub> in the indoor environment	L <sub>WA</sub>	dB	38
<b>Water heating parameters</b>			
<b>Water heating – the declared load profile</b>			XL
Daily electricity consumption	Q <sub>elec</sub>	kWh	10,6
Annual electricity consumption*	AEC	kWh	2350
Water heating energy efficiency	η <sub>wh</sub>	%	40
Daily fuel consumption	Q <sub>fuel</sub>	kWh	-
Annual fuel consumption	AFC	GJ	-
Condensing combined heater			No
Low temperature application			No
Combined heater			Yes
Combined heater with type B1			No
Hermetic type combined heater			No
Auxiliary combined heater			No
All special precautions for installation and maintenance are described in the operating and installation manual. Read and follow the operation and installation manual. Read and follow the operating and installation manuals on assembly, installation, maintenance, disassembly, recycling and/or disposal.			
* for average climatic conditions			
(1) For condensing combined heaters: Low temperature means 30°C, low temperature means 37°C for boilers and 50°C return temperature (at the heater inlet) for other heaters.			
(2) High temperature regime means 60°C return water temperature at the heater inlet and 80°C outlet water temperature.			



**DEK 24**


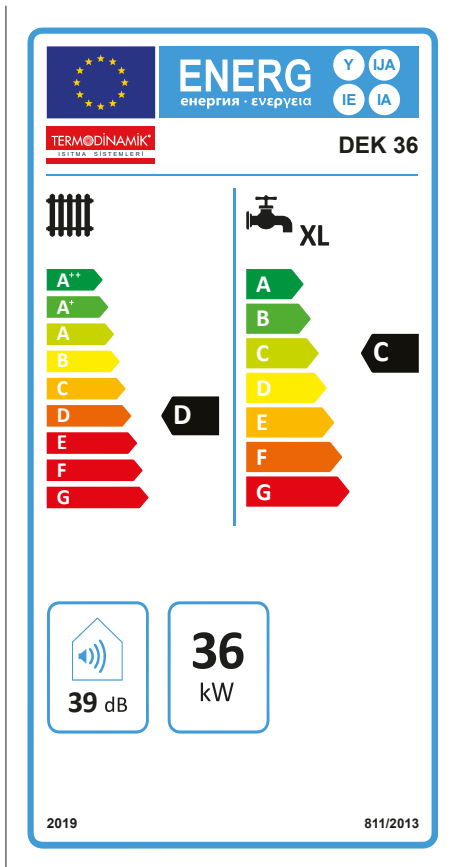
SPECIFICATION	Units	MODEL
		DEK 24
Product Name	-	Electric Boiler
Brand	-	Termodinamik
Declared Load Profile for Water Heating	Q <sub>ref</sub> = 19,07	XL
Seasonal Space Heating Energy Efficiency Class		D
Water Heating Energy Efficiency Class		C
Rated heat output (Prated or Psup)	kW	24
Space heating - Annual energy consumption	Q <sub>HE</sub>	GJ
Water heating - Annual energy consumption	kWh	4280
Seasonal space heating energy efficiency	%	38
Water heating energy efficiency	%	39
Sound power level, L <sub>WA</sub>	dB	38
Special precautions for assembly, installation and maintenance	Before any assembly, installation or maintenance, the user and installation manual should be read carefully and the instructions should be followed.	
All data contained in the product information have been determined by applying the specifications of the relevant European directives. Product information listed in different places may result in different test conditions. Only the data contained in this product information is valid.		

Declared Load Profile for Water Heating			XL
Rated heat output	P <sub>rated</sub>	kW	24
Useful heat output at rated output and high temperature regime <sup>(2)</sup>	P <sub>4</sub>		23,8
Useful heat output at 30% of rated heat output and low temperature regime (partial load) <sup>(1)</sup>	P <sub>1</sub>		4,0
<b>Seasonal Space Heating Energy Efficiency</b>	η <sub>s</sub>	%	38
Useful efficiency at rated heat output and high temperature regime <sup>(2)</sup>	η <sub>4</sub>	%	37
Useful efficiency at 30% (partial load) of rated heat output and low temperature regime <sup>(1)</sup>	η <sub>1</sub>	%	38
<b>Electricity consumption</b>			
Energy consumption at full load	el <sub>max</sub>	kW	0,065
Energy consumption at partial load	el <sub>min</sub>	kW	0,30
Energy consumption at standby	P <sub>SB</sub>	kW	0,005
<b>Other</b>			
Standby heat loss	P <sub>Stby</sub>	kW	0,120
Ignition burner energy consumption	P <sub>Ign</sub>	kW	0,00
Space heating - Annual energy consumption	Q <sub>HE</sub>	GJ	74
Sound power level, L <sub>WA</sub> in the indoor environment	L <sub>WA</sub>	dB	38
<b>Water heating parameters</b>			
<b>Water heating – the declared load profile</b>			XL
Daily electricity consumption	Q <sub>elec</sub>	kWh	19,5
Annual electricity consumption*	AEC	kWh	4280
Water heating energy efficiency	η <sub>wh</sub>	%	39
Daily fuel consumption	Q <sub>Fuel</sub>	kWh	-
Annual fuel consumption	AFC	GJ	-
Condensing combined heater			No
Low temperature application			No
Combined heater			Yes
Combined heater with type B1			No
Hermetic type combined heater			No
Auxiliary combined heater			No
All special precautions for installation and maintenance are described in the operating and installation manual. Read and follow the operation and installation manual. Read and follow the operating and installation manuals on assembly, installation, maintenance, disassembly, recycling and/or disposal.			
* for average climatic conditions			
(1) For condensing combined heaters: Low temperature means 30°C, low temperature means 37°C for boilers and 50°C return temperature (at the heater inlet) for other heaters.			
(2) High temperature regime means 60°C return water temperature at the heater inlet and 80°C outlet water temperature.			

**DEK 30**


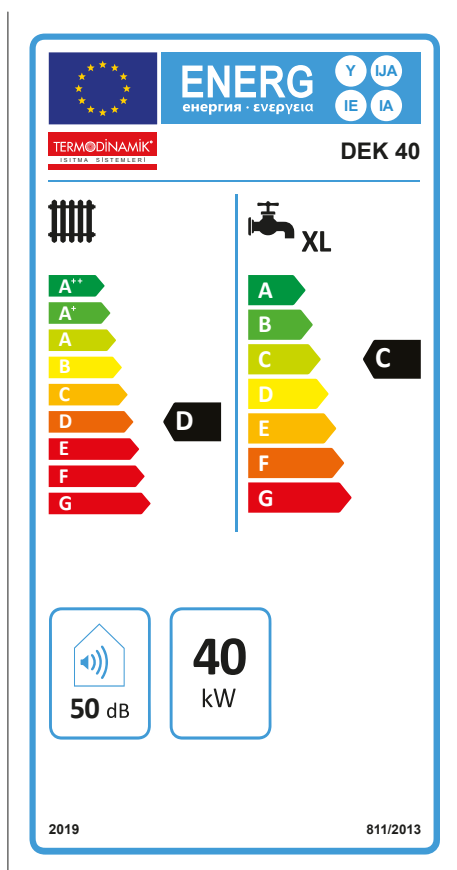
SPECIFICATION	Units	MODEL
		DEK 30
Product Name	-	Electric Boiler
Brand	-	Termodinamik
Declared Load Profile for Water Heating	Q <sub>ref</sub> = 19,07	XL
Seasonal Space Heating Energy Efficiency Class		D
Water Heating Energy Efficiency Class		C
Rated heat output (Prated or Psup)	kW	30
Space heating - Annual energy consumption	Q <sub>HE</sub>	GJ
Water heating - Annual energy consumption	kWh	4280
Seasonal space heating energy efficiency	%	38
Water heating energy efficiency	%	39
Sound power level, L <sub>WA</sub>	dB	39
Special precautions for assembly, installation and maintenance	Before any assembly, installation or maintenance, the user and installation manual should be read carefully and the instructions should be followed.	
All data contained in the product information have been determined by applying the specifications of the relevant European directives. Product information listed in different places may result in different test conditions. Only the data contained in this product information is valid.		

Declared Load Profile for Water Heating			XL
Rated heat output	P <sub>rated</sub>	kW	30
Useful heat output at rated output and high temperature regime <sup>(2)</sup>	P <sub>4</sub>		29,6
Useful heat output at 30% of rated heat output and low temperature regime (partial load) <sup>(1)</sup>	P <sub>1</sub>		4,2
<b>Seasonal Space Heating Energy Efficiency</b>	η <sub>s</sub>	%	38
Useful efficiency at rated heat output and high temperature regime <sup>(2)</sup>	η <sub>4</sub>	%	38
Useful efficiency at 30% (partial load) of rated heat output and low temperature regime <sup>(1)</sup>	η <sub>1</sub>	%	38
<b>Electricity consumption</b>			
Energy consumption at full load	el <sub>max</sub>	kW	0,065
Energy consumption at partial load	el <sub>min</sub>	kW	0,30
Energy consumption at standby	P <sub>SB</sub>	kW	0,005
<b>Other</b>			
Standby heat loss	P <sub>Stby</sub>	kW	0,120
Ignition burner energy consumption	P <sub>Ign</sub>	kW	0,00
Space heating - Annual energy consumption	Q <sub>HE</sub>	GJ	82
Sound power level, L <sub>WA</sub> in the indoor environment	L <sub>WA</sub>	dB	39
<b>Water heating parameters</b>			
<b>Water heating – the declared load profile</b>			XL
Daily electricity consumption	Q <sub>elec</sub>	kWh	19,5
Annual electricity consumption*	AEC	kWh	4280
Water heating energy efficiency	η <sub>wh</sub>	%	39
Daily fuel consumption	Q <sub>Fuel</sub>	kWh	-
Annual fuel consumption	AFC	GJ	-
Condensing combined heater			No
Low temperature application			No
Combined heater			Yes
Combined heater with type B1			No
Hermetic type combined heater			No
Auxiliary combined heater			No
All special precautions for installation and maintenance are described in the operating and installation manual. Read and follow the operation and installation manual. Read and follow the operating and installation manuals on assembly, installation, maintenance, disassembly, recycling and/or disposal.			
* for average climatic conditions			
(1) For condensing combined heaters: Low temperature means 30°C, low temperature means 37°C for boilers and 50°C return temperature (at the heater inlet) for other heaters.			
(2) High temperature regime means 60°C return water temperature at the heater inlet and 80°C outlet water temperature.			

**DEK 36**


SPECIFICATION	Units	MODEL
		DEK 36
Product Name	-	Electric Boiler
Brand	-	Termodinamik
Declared Load Profile for Water Heating	Q <sub>ref</sub> = 19,07	XL
Seasonal Space Heating Energy Efficiency Class		D
Water Heating Energy Efficiency Class		C
Rated heat output (Prated or Psup)	kW	36
Space heating - Annual energy consumption	Q <sub>HE</sub>	GJ
Water heating - Annual energy consumption	kWh	5640
Seasonal space heating energy efficiency	%	38
Water heating energy efficiency	%	40
Sound power level, L <sub>WA</sub>	dB	39
Special precautions for assembly, installation and maintenance	Before any assembly, installation or maintenance, the user and installation manual should be read carefully and the instructions should be followed.	
All data contained in the product information have been determined by applying the specifications of the relevant European directives. Product information listed in different places may result in different test conditions. Only the data contained in this product information is valid.		

Declared Load Profile for Water Heating			XL
Rated heat output	P <sub>rated</sub>	kW	36
Useful heat output at rated output and high temperature regime <sup>(2)</sup>	P <sub>4</sub>		35,7
Useful heat output at 30% of rated heat output and low temperature regime (partial load) <sup>(1)</sup>	P <sub>1</sub>		4,4
<b>Seasonal Space Heating Energy Efficiency</b>	η <sub>s</sub>	%	38
Useful efficiency at rated heat output and high temperature regime <sup>(2)</sup>	η <sub>4</sub>	%	39
Useful efficiency at 30% (partial load) of rated heat output and low temperature regime <sup>(1)</sup>	η <sub>1</sub>	%	38
<b>Electricity consumption</b>			
Energy consumption at full load	el <sub>max</sub>	kW	0,065
Energy consumption at partial load	el <sub>min</sub>	kW	0,30
Energy consumption at standby	P <sub>SB</sub>	kW	0,005
<b>Other</b>			
Standby heat loss	P <sub>Stby</sub>	kW	0,120
Ignition burner energy consumption	P <sub>Ign</sub>	kW	0,00
Space heating - Annual energy consumption	Q <sub>HE</sub>	GJ	90
Sound power level, L <sub>WA</sub> in the indoor environment	L <sub>WA</sub>	dB	39
<b>Water heating parameters</b>			
<b>Water heating – the declared load profile</b>			XL
Daily electricity consumption	Q <sub>elec</sub>	kWh	25,6
Annual electricity consumption*	AEC	kWh	5640
Water heating energy efficiency	η <sub>wh</sub>	%	40
Daily fuel consumption	Q <sub>Fuel</sub>	kWh	-
Annual fuel consumption	AFC	GJ	-
Condensing combined heater			No
Low temperature application			No
Combined heater			Yes
Combined heater with type B1			No
Hermetic type combined heater			No
Auxiliary combined heater			No
All special precautions for installation and maintenance are described in the operating and installation manual. Read and follow the operation and installation manual. Read and follow the operating and installation manuals on assembly, installation, maintenance, disassembly, recycling and/or disposal.			
* for average climatic conditions			
(1) For condensing combined heaters: Low temperature means 30°C, low temperature means 37°C for boilers and 50°C return temperature (at the heater inlet) for other heaters.			
(2) High temperature regime means 60°C return water temperature at the heater inlet and 80°C outlet water temperature.			

**DEK 40**


SPECIFICATION	Units	MODEL DEK 40
Product Name	-	Electric Boiler
Brand	-	Termodinamik
Declared Load Profile for Water Heating	Q <sub>ref</sub> = 19,07	XL
Seasonal Space Heating Energy Efficiency Class		D
Water Heating Energy Efficiency Class		C
Rated heat output (Prated or Psup)	kW	40
Space heating - Annual energy consumption	Q <sub>HE</sub> GJ	98
Water heating - Annual energy consumption	kWh	5640
Seasonal space heating energy efficiency	%	38
Water heating energy efficiency	%	40
Sound power level, L <sub>WA</sub>	dB	40
Special precautions for assembly, installation and maintenance	Before any assembly, installation or maintenance, the user and installation manual should be read carefully and the instructions should be followed.	
All data contained in the product information have been determined by applying the specifications of the relevant European directives. Product information listed in different places may result in different test conditions. Only the data contained in this product information is valid.		

Declared Load Profile for Water Heating			XL
Rated heat output	P <sub>rated</sub>	kW	40
Useful heat output at rated output and high temperature regime <sup>(2)</sup>	P <sub>4</sub>		39,8
Useful heat output at 30% of rated heat output and low temperature regime (partial load) <sup>(1)</sup>	P <sub>1</sub>		4,5
<b>Seasonal Space Heating Energy Efficiency</b>	η <sub>s</sub>	%	38
Useful efficiency at rated heat output and high temperature regime <sup>(2)</sup>	η <sub>4</sub>	%	40
Useful efficiency at 30% (partial load) of rated heat output and low temperature regime <sup>(1)</sup>	η <sub>1</sub>	%	38
<b>Electricity consumption</b>			
Energy consumption at full load	el <sub>max</sub>	kW	0,065
Energy consumption at partial load	el <sub>min</sub>	kW	0,30
Energy consumption at standby	P <sub>SB</sub>	kW	0,005
<b>Other</b>			
Standby heat loss	P <sub>Stby</sub>	kW	0,120
Ignition burner energy consumption	P <sub>Ign</sub>	kW	0,00
Space heating - Annual energy consumption	Q <sub>HE</sub>	GJ	98
Sound power level, L <sub>WA</sub> in the indoor environment	L <sub>WA</sub>	dB	40
<b>Water heating parameters</b>			
<b>Water heating - the declared load profile</b>			XL
Daily electricity consumption	Q <sub>elec</sub>	kWh	25,6
Annual electricity consumption*	AEC	kWh	5640
Water heating energy efficiency	η <sub>wh</sub>	%	40
Daily fuel consumption	Q <sub>Fuel</sub>	kWh	-
Annual fuel consumption	AFC	GJ	-
Condensing combined heater			No
Low temperature application			No
Combined heater			Yes
Combined heater with type B1			No
Hermetic type combined heater			No
Auxiliary combined heater			No
All special precautions for installation and maintenance are described in the operating and installation manual. Read and follow the operation and installation manual. Read and follow the operating and installation manuals on assembly, installation, maintenance, disassembly, recycling and/or disposal.			
* for average climatic conditions			
(1) For condensing combined heaters: Low temperature means 30°C, low temperature means 37°C for boilers and 50°C return temperature (at the heater inlet) for other heaters.			
(2) High temperature regime means 60°C return water temperature at the heater inlet and 80°C outlet water temperature.			

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