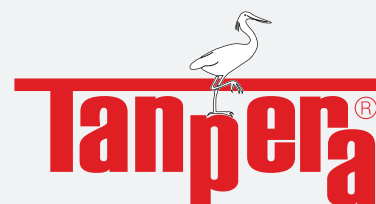




Coil-Type Water Heaters User Manual



Project :
Customer :
Heat Exchanger Type :
Serial Number :
Year :

The information contained in this document is based on the most up-to-date information and production materials available at the time of publication. Therefore, due to rapid developments in this field, we assume no liability for changes in technical specifications that may affect the content of this document.

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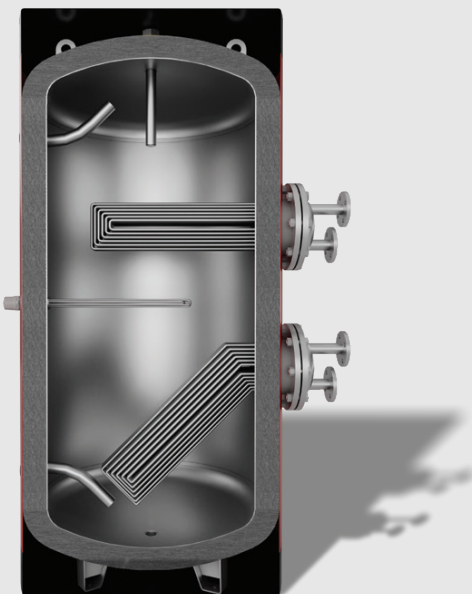
1.What Is a Coil-Type Water Heater?

A coil-type water heater is a smart hot water storage system that allows you to make the most of your existing heating sources (central boiler, heat pump, solar energy) with maximum efficiency.

It circulates the hot fluid from the system through specially designed coils with a large surface area. Thanks to this heat transfer, it heats domestic hot water quickly and extremely efficiently.

1.1. Fixed Coil Water Heater

The Fixed Coil Enameled Water Heater ensures a continuous and reliable supply of hot water by efficiently storing heat energy from various energy sources. Available in various sizes and capacities to meet specific usage needs, these boilers offer a durable and hygienic solution with a corrosion-resistant enamel coating. Known for their energy efficiency, fixed coil boilers provide a wide range of applications across diverse sectors, including residential, shopping malls, tourism, and industrial facilities.



1.2. Replaceable Coil Water Heater

Boilers with Replaceable Coils are a durable and flexible hot water solution available in various capacities ranging from 100 to 5,000 liters. These boilers are designed to store the energy of hot fluid from energy sources such as boilers, heat pumps, and solar energy to heat tap water. The replaceable coil feature ensures ease of maintenance and repair while supporting the system's long-lasting and efficient operation.



General Features

- We offer a range of sizes with storage capacities ranging from 100 liters to 5,000 liters for our customers.
- It is available with a single or double heating element, either with a double-layer enamel-coated coil or a stainless steel electric heating element.
- Thanks to the optimal design of the heating coil, it delivers high performance and efficient heat transfer, providing a large volume of hot water to meet all needs.
- You have the option to use solid, liquid, or gaseous fuel-fired hot water boilers, solar collectors, heat pumps, or electricity—either individually or in combination—in the most efficient way possible.
- To minimize energy loss, it is delivered fully insulated.
- Surfaces that come into contact with water are coated with high-quality enamel, ensuring both corrosion protection and the smooth surface finish necessary for hygiene.
- Thanks to the special design of the heating coil, it eliminates the risk of bacterial growth (e.g., Legionella) by ensuring there are no cold spots inside the tank and provides uniform heat distribution throughout the tank.
- With connection ports of the appropriate size and location, it is ready to be installed in the system.
- It is equipped with a magnesium anode for cathodic protection.
- Before being delivered to the customer, it is tested at 1.3 times the operating pressure.

2. Operating Principle

Coil-type boilers operate on the principle of indirect heating and energy recovery.

- The device uses hot fluid (such as boiler water) from an external heat source, such as a boiler, heat pump, or solar collector.
- This hot fluid is circulated through the coil tubes, which are installed inside the tank and have a large surface area.
- The coil surface quickly and efficiently transfers heat to the domestic water (tap water) waiting inside the tank. During this process, the two streams of water never come into physical contact with each other.
- The fluid, which transfers its heat to the domestic hot water, cools down and returns to the heat source (the boiler).

Fixed Coil Water Heater

The coils installed inside the boiler transfer the energy from the hot fluid coming from the energy source to the water. Heat transfer occurs through the movement of the fluid within the coils, and this energy keeps the stored water warm. Dual-coil designs offer higher efficiency by combining different energy sources.

Replaceable Coil Water Heater

The coils inside the boiler transfer the energy of the fluid from the energy source to the tap water. Thanks to the flanges on the body, the coils can be easily removed, cleaned, and replaced if necessary. This speeds up the maintenance process and keeps system performance high over the long term.

3. Terms of Liability and Warranty

This section outlines the warranty coverage, user responsibilities, and exclusions for the Replaceable and Fixed Coil Boiler products manufactured by TANPERA A.Ş.

- This warranty is valid provided that the product is used in accordance with the installation, operation, and maintenance instructions specified in the user manual.
- The operator's/user's responsibility begins upon delivery of the product.
- Please read the Installation and User Manual before delivery.
- The installation of the device and its electrical connections must be performed only by technical personnel authorized by the manufacturer.
- During the warranty period, the device must be opened, repaired, and have parts replaced only by an authorized service center.
- The user is responsible for ensuring the safe operation of the device and taking the necessary safety precautions.
- The manufacturer shall not be held liable for any injury, property damage, or environmental harm resulting from failure to comply with the safety and usage instructions contained in this guide.
- Any modifications made to the product or accessories, or any non-standard use, may compromise the product's safety and void the warranty.
- When unpacking the product, check to see if it has been damaged during transport. Additionally, when unloading the product from the vehicle and moving it into place, be sure to use equipment such as forklifts or pallet jacks. Rough handling—such as dragging, pushing, or pulling—will damage the electrical equipment.
- The product may only be used for the purposes for which it was designed. Any other use may be hazardous.

- Before putting the unit into operation, make sure it is completely filled with water. Check all connections and pipes for leaks. Once the unit is completely filled with water, turn on the hot water tap to remove any air from the unit.
- It is the customer's responsibility to keep the invoice and warranty certificate on file during the warranty period.

3.1. Situations Not Covered by the Warranty

Failures and damage resulting from the following situations are not covered by the warranty:

- Failure to use the product for its intended purpose.
- Operation, maintenance, repair, and installation by persons or organizations not authorized by Tanpera.
- Failure to follow the instructions in this guide.
- Operating the product with damaged or improperly installed safety devices.
- Failure to perform maintenance work on time.
- Problems and malfunctions resulting from reduced coil efficiency, clogging, or sediment buildup at the bottom of the boiler due to limescale caused by hard water are not covered under warranty.
- The "Magnesium Anode Rod" is a consumable designed to prevent corrosion inside the water heater. Any issues or malfunctions resulting from holes or corrosion in the water heater body (enamel or coating) caused by failure to perform annual inspections of this rod or to replace it when it wears out are not covered under warranty.
- Problems and malfunctions resulting from the boiler shell bursting or deforming due to the operating pressure (e.g., 10 bar) being exceeded—whether caused by the failure to use a pressure reducer in the system or the malfunction or deactivation of the safety valve—are not covered by the warranty.
- Problems and malfunctions resulting from cracks caused by leaving the device in an environment where it is not protected against freezing are not covered by the warranty.
- Damage caused during transportation, loading, or unloading after delivery, or due to improper storage conditions, is not covered by the warranty.

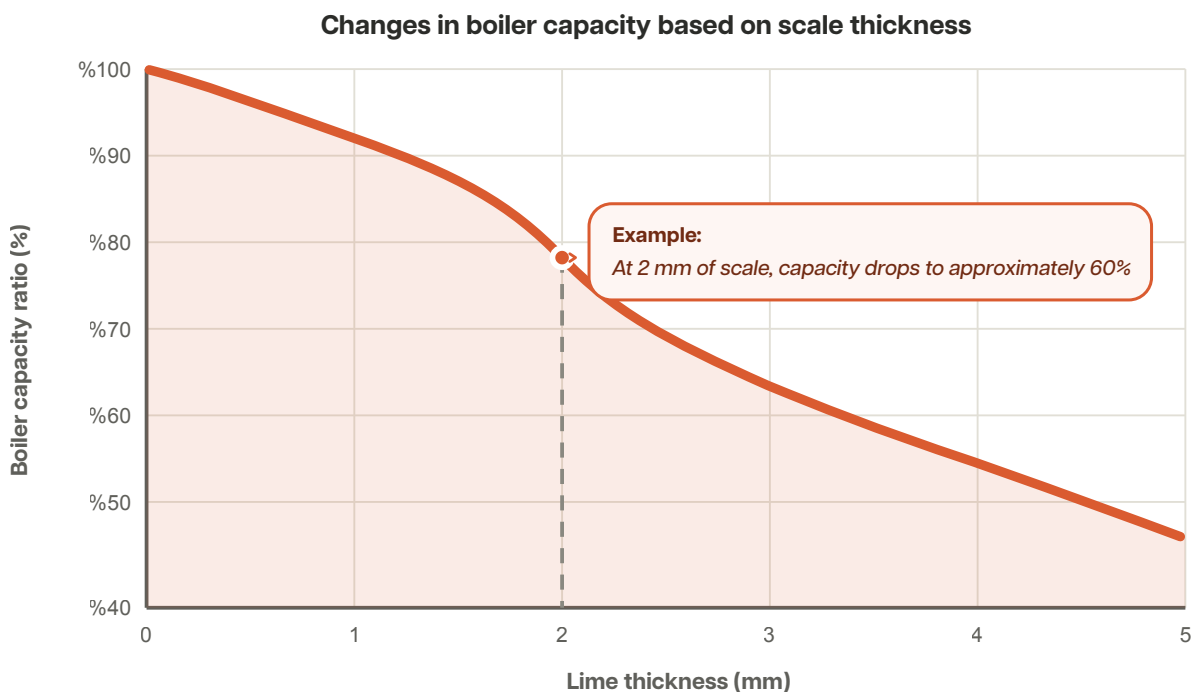
NOTE:

The properties of water used in boilers must comply with the Turkish Ministry of Health's Regulation on Water for Human Consumption. (Regulation No. 28580 dated March 7, 2013) In summary, to minimize corrosion damage, the chemical properties of the water must fall within the limit values specified in the table below.

Threshold Values	
pH	6,5 – 9,5
Conductivity at 20°C	50-500 μ S/cm
Total Hardness	10 - 20 °Fr (5,5 - 11 °dH , 100-200ppm)
Chloride (Cl)	\leq 250 mg/l
Sulfate (SO ₄ ²⁻)	\leq 250 mg/l
Baking Soda (HCO ₃ ⁻)	70-300 mg/l
Free Chlorine Gas (Cl ₂)	<1 mg/l (within 5 hours)

Water Hardness Level

The maximum total hardness value permitted in the water is 10–20°F, as shown in the table above. As is well known, scale formation occurs when the thermal equilibrium of calcium (calcium carbonate, CaCO_3) and magnesium (magnesium carbonate, MgCO_3) minerals in water is disrupted at certain temperatures, causing them to crystallize. This significantly shortens the service life of electric heaters. Scale formation on metal surfaces begins at water temperatures around 25°C – 40°C, depending on the levels of Ca and Mg, and as the temperature increases, scale formation continues to increase at the same rate. The negative impact of scale formed on heater surfaces in hot water/hot water applications on heat transfer and the resulting capacity reduction rates are shown in the graph below.



3.2. Warranty Period

- The warranty is valid for two years from the date of the invoice.
- Please contact the Tanpera Service Center for commissioning and annual maintenance.

3.3. Customer Responsibilities and Terms of Service

To maintain the validity of the warranty, the user must comply with the following conditions:

- **Safety Valve:** A safety valve rated for the boiler's operating pressure must be installed on the cold water inlet, and its drain must be connected to an open drain.
- **Routine Maintenance:** To ensure the device operates efficiently, it must be serviced by an authorized service center or qualified personnel every six months or at least once a year.

3.4. Fault Reporting and Service

- In the event of a malfunction, you must contact an authorized service center or the manufacturer before attempting to repair the device.
- Repairs, part replacements, or modifications performed by unauthorized persons will void the device's warranty.

4. Warning and Safety

This section contains essential guidelines that must be followed to ensure the safe installation, commissioning, and use of the device. Please read these instructions carefully before using the device.



Danger: Improper use may result in serious injury or death.

- **Risk of Electric Shock:** Electrical connections to the device must be made only by authorized and qualified personnel. The power to the device must be turned off before performing any maintenance or repairs.
- **Grounding Is Required:** If the coil-type water heater is not properly grounded, a fatal electric shock may occur. The continuity of the grounding wire must be checked periodically.
- **Risk of Excessive Pressure:** The safety valve, expansion tank, and thermal safety equipment must not be disabled. Removing or shutting off this equipment poses an explosion risk.
- **Risk of Extreme Heat:** If the thermostat settings are altered by unauthorized persons, the water may reach boiling point and cause serious burns.



Warning: Improper use may result in injury or damage to the equipment.

- **Water Leaks and Moisture:** If there is a water leak or moisture buildup in the area where the electrical panel is located, the device must not be operated under any circumstances.
- **Environmental Conditions:** The area where the device is installed must be well-ventilated, and flammable or explosive materials must be kept away from the device.
- **Repair and Maintenance:** Unauthorized modifications to the device, the use of non-standard parts, or attempts to increase power output will void the warranty and result in unsafe operation.
- **Risk of Freezing:** In environments where there is a risk of freezing, the device must be drained or appropriate freeze protection equipment must be used.
- **Overloading:** Exceeding the maximum operating pressure and temperature specified by the manufacturer may cause damage to the device.



Warning: Improper use may adversely affect equipment performance or cause minor damage.

- **Valve Positions:** Valves located on the water inlet and outlet lines may cause excessive pressure in the system if they are in the wrong position. Valve positions must be adjusted according to the manufacturer's instructions.
- **Periodic Inspections:** The area where the device is installed must be well-ventilated, and flammable or explosive materials must be kept away from the device.
- **User Responsibility:** The device's control panel must be monitored continuously by the user, and authorized service must be contacted if any fault signals occur.
- **Water Quality:** Hard water or aggressive water chemistry can cause scale buildup on the surfaces of electric and coil-type water heaters, leading to reduced efficiency and temperature sensor malfunctions. Water treatment should be applied as needed.

Corrosion Protection

Cathodic protection involves halting the anodic reactions occurring on the surface of metals exposed to water and air by making the metal act as the cathode in a subsequently formed electrochemical cell. The cathodic protection we apply in our coil boilers is galvanic in nature, and the galvanic element serves as the anode. The DIN 4753-3 standard specifies certain tolerances for enamel coatings. These tolerances describe trace amounts of weak areas in the enamel coating. The anode's function is to prevent corrosion from starting in these areas.

4.1. General Safety Rules

- The installation, electrical connections, and initial startup of the device must be performed only by an authorized service provider or by certified electricians with expertise in this field.
- This device is designed solely for heating and storing domestic hot water. Using it with other liquids or for any purpose other than its intended use is strictly prohibited and dangerous.
- Coil-type water heaters must be installed in a dry location with adequate ventilation where there is no risk of freezing. If there is a risk of freezing, the water in the system must be completely drained.
- A safety valve suitable for the boiler's operating pressure (as indicated on the label, e.g., 8–10 bar) must be installed on the cold water supply line.
- To compensate for the pressure caused by the expansion of water as it heats up, it is recommended to install a sanitary expansion tank with the appropriate capacity in the system.
- The water temperature inside a coil-type water heater can reach 60°C or higher. Keep in mind that the first water to come out of the faucet may be extremely hot. The use of a thermostatic mixing valve is recommended, especially for the elderly and children.
- While the unit is in operation, the coil inlet and outlet pipes and the flange area may reach high temperatures. Do not touch them with bare hands.
- A full water heater is very heavy. You must ensure that the floor or platform where the unit will be installed is strong enough to support the weight of the water-filled water heater.
- Coil-type water heaters must be stabilized to prevent tipping during installation and must be level with the floor.

4.2. Electrical Safety (For Models with Heating Elements)

If your radiators are equipped with electric heating elements (heating coils), these rules apply.

- The device must be connected to an effective grounding circuit. Using the device without proper grounding poses a risk of electric shock.
- You must use a cable with a cross-sectional area appropriate for the device's power rating and a fuse with the correct amperage.
- Water must never come into contact with the electrical panel or heating element connections. Do not handle the device with wet hands.

5. Scope of Delivery

The scope of delivery is specified in the shipping document. Immediately upon receipt of the product, please inspect the goods for accuracy and damage. Please report any shipping damage to our company immediately.

5.1. Things to Keep in Mind When Receiving a Product

Visual Inspection: When receiving the product from the shipping or delivery company, be sure to check the packaging for any tears, dents, or damage.

Damage Report: If you notice any shipping-related damage to the product (such as dents on the body or deep tears in the outer packaging), do not accept the delivery and be sure to have the shipping representative prepare a “Damage Report.” Shipping insurance may not apply to damaged products for which no report has been filed.

When you receive your Tanpera Boiler with Removable or Fixed Coil, please check that the parts listed below are complete and undamaged

Unless otherwise specified, a standard coil-type water heater shipment includes the following components:

Boiler Body: A tank body manufactured from enamel-coated steel, stainless steel (AISI 304 / AISI 316L), or corrosion-resistant material, with a capacity (in liters) matching the relevant order.

Serpantin Group:

In Models with Fixed Coils: An internal coil tube welded to the body.

For Interchangeable Models: Copper or stainless steel pipe bundle mounted on a flange (pre-assembled onto the body).

Insulation and Outer Jacket:

- For small capacities, it is typically applied to the body; 50mm rigid polyurethane insulation and Thermowen coating.
- For large capacities (1,500–5,000 L), they are typically sold as separate packages or as a pre-assembled unit; featuring 80 mm open-cell soft polyurethane insulation and a vinyl cover (Vinleks).

Magnesium Anode Rod: It is mounted on the tank body to protect the tank against corrosion.

Thermometer: Mounted in the slot on the tank or included in the package (analog temperature gauge).

Cleaning Cover Gasket and Flange: (If available on the model) Mounted on the housing.

Documents: User Manual and Warranty Certificate.

Shipping:

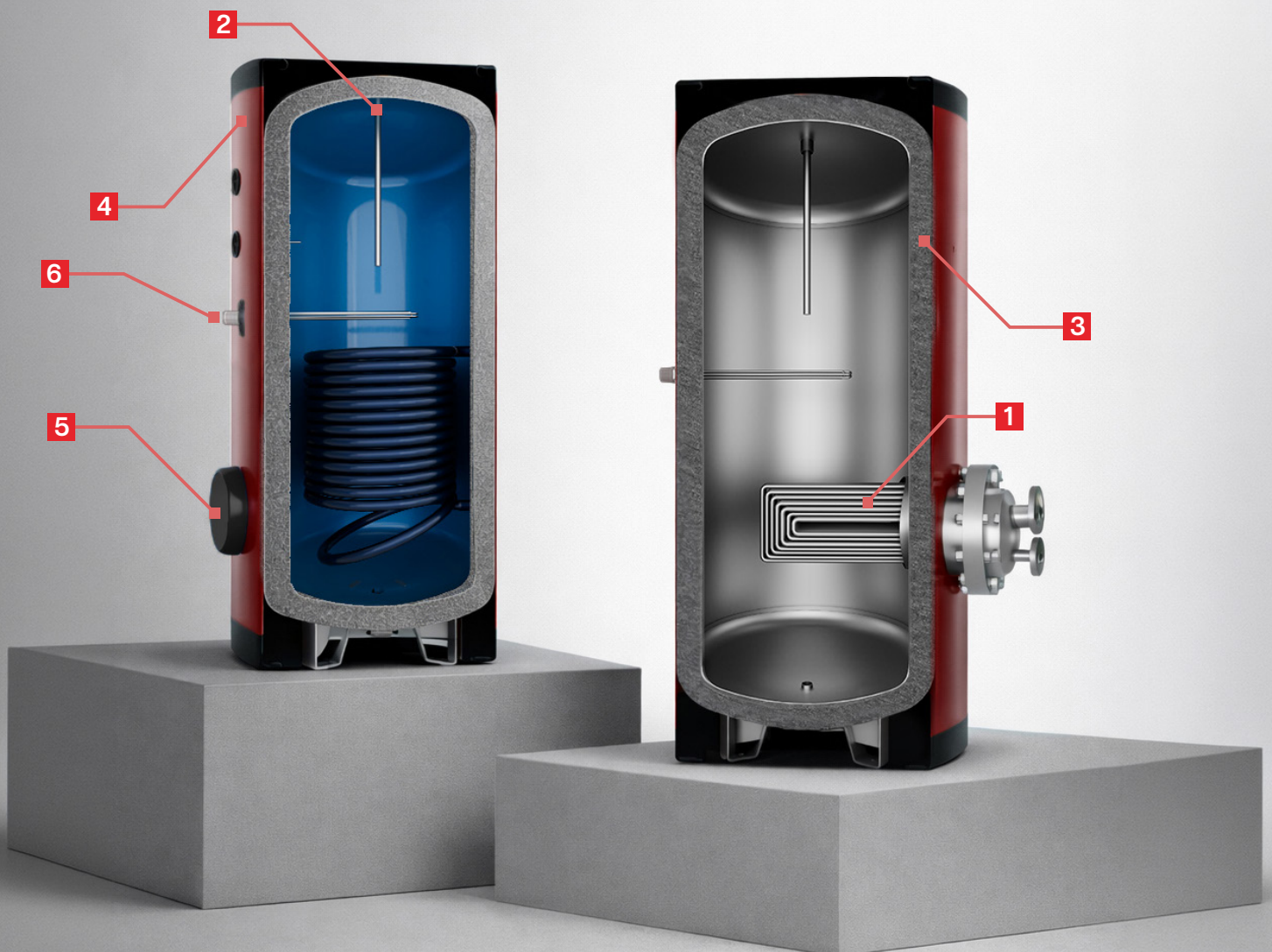
- To install the unit, a level base strong enough to support the weight of the boiler must be prepared. The unit is packaged on a wooden pallet for easy transport. This pallet must be removed before installation.
- Products must be transported in such a way that they do not tip over, get crushed, or get wet during shipping.
- Care must be taken when unloading products from the vehicle; they must be handled in such a way that they do not fall or tip over, and, if necessary, they must be transported to the storage or installation site using appropriate handling equipment.
- If any damage or missing items are found on the control panel, the shipping company must be instructed to document the damage in a report, and our company must be notified in writing.

Storage:

- Products should be stored in a dry, well-ventilated area.
- Precautions should be taken to prevent products from tipping over in the event of an earthquake or for other reasons.
- Products must be stored in such a way that no weight is placed on them and no objects fall on them.
- Products must be protected against flooding and potential exposure to moisture.
- Products must be stored in a frost-protected area.
- When it is turned off, precautions should be taken to prevent it from freezing, or the water should be drained.

6. Product Components

- 1** Coil (Heat Exchanger)
- 2** Magnesium Anode Rod
- 3** High-Density Insulation
- 4** Outer Casing (Jacket)
- 5** Cleaning Flange (Maintenance Cover)
- 6** Electric Heating Element Housing (Optional)



7. Technical Specifications

Boilers with single or double fixed or replaceable coils that provide high-temperature hot water


- Condensing units are fully compatible with boilers, heat pumps, and solar energy systems.
- High comfort for domestic water use between 100 and 5,000 liters
- Maximum operating pressure (Tank): 10 bar
- Maximum operating pressure (coil): 16 bar
- Maximum operating temperature (Storage): 95 °C
- Maximum operating temperature (coil): 120 °C
- Construction: S235JR Steel
- Minimal limescale buildup thanks to its smooth surface. Superior-quality enamel coating compliant with DIN 4753-3 ensures hygienic hot water protection and optimal corrosion protection
- Magnesium anode protection



- Easy to install and largely maintenance-free design
- Corrosion protection with an external enamel coating
- With sensor housing (1/2") and thermometer
- Recirculation connection option
- Maximum protection against Legionella thanks to the coil set at a low level
- High thermal insulation
 - 100 - 1000 L: 50mm, 42 kg/m³
- With Rigid Polyurethane Insulation
 - 1500 - 5000 L: 80mm, 18 kg/m³
 - Open-Cell Soft Polyurethane Insulation
- Outer Shell Coating
 - 100 - 1000 L: Termowen Coating
 - 1500 - 5000 L: Vinyl Case (Vinleks)
- It is designed in accordance with the TS 736 and TS EN 13445-3 standards.

8. Product Label

All TANPERA-branded expansion tanks have a nameplate. This nameplate includes the following details:



TANPERA TEKNOLOJİ VE END. ÜRÜN.SAN. VE TİC. A.Ş.
Single-Coil Instant Water Heater

Model	TSB300/10
Hacim Volume	300 Litre
Maks. İşletme Sıcaklığı Max. Operating Temperature	90°C
Maks. İşletme Basıncı Max. Operating Pressure	10 Bar
Çap Diameter	590mm
Yükseklik Height	1820mm
Ağırlık Weight	99 Kg


WARNINGS


A safety valve with a minimum diameter of 3/4" and a maximum opening pressure of 9 bar must be installed at the cold water inlet.

The sacrificial anode rod must be inspected regularly and replaced by **TANPERA** service when necessary.

The cleaning and periodic maintenance of your product must be performed by **TANPERA** service.

Şeyhli Mh. Ankara Cd. No: 380/C, Pendik, İstanbul, Turkey
info@tanpera.com.tr / +90 850 308 0114





TANPERA TEKNOLOJİ VE END. ÜRÜN.SAN. VE TİC. A.Ş.
Double-Coil Instant Boiler

Model	TDB200/10
Hacim Volume	200 Litre
Maks. İşletme Sıcaklığı Max. Operating Temperature	90°C
Maks. İşletme Basıncı Max. Operating Pressure	10 Bar
Çap Diameter	590mm
Yükseklik Height	1250mm
Ağırlık Weight	115 Kg


WARNINGS

A safety valve with a minimum diameter of 3/4" and a maximum opening pressure of 9 bar must be installed at the cold water inlet.

The sacrificial anode rod must be inspected regularly and replaced by **TANPERA** service when necessary.

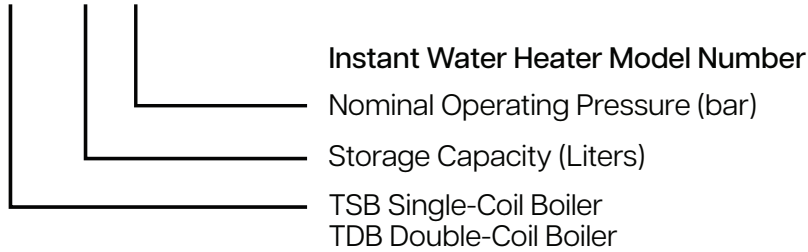
The cleaning and periodic maintenance of your product must be performed by **TANPERA** service.

Şeyhli Mh. Ankara Cd. No: 380/C, Pendik, İstanbul, Turkey
info@tanpera.com.tr / +90 850 308 0114



9. Product Notation and Descriptions

TANPERA-TSB 500/10



10. Table Containing Product Model Names and Technical Specifications

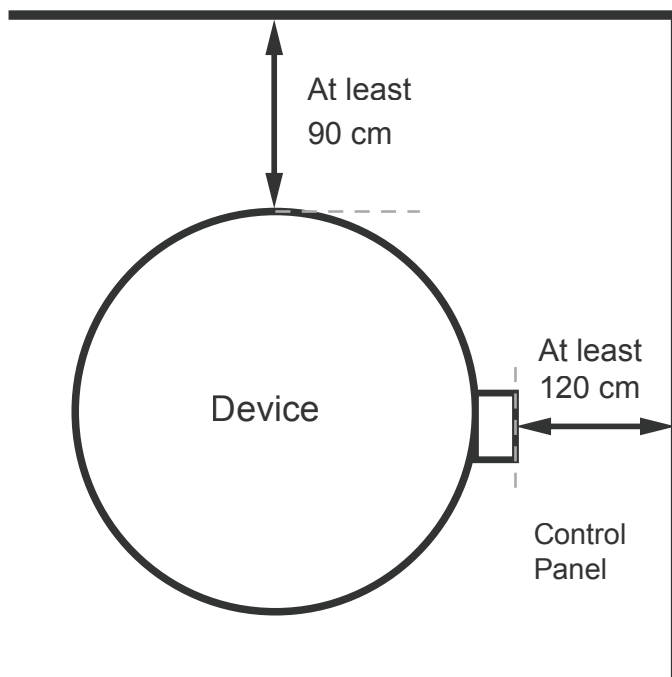
Tanpera Fixed Coil Water Heaters							
Device Type	OD (mm)	H (mm)	C1	C2	C3	C4	Empty Weight (kg)
TSB 100	490	1030	1"	3/4"	3/4"	3/4"	48
TSB 200	590	1300	1"	3/4"	3/4"	3/4"	75
TSB 300	700	1820	1"	1"	1"	1"	99
TSB 500	750	1620	1"	1"	1"	1"	130
TSB 800	900	1670	1 1/4"	1 1/4"	1 1/4"	1 1/4"	200
TSB 1000	1000	2010	1 1/4"	1 1/4"	1 1/4"	1 1/4"	240
TSB 1500	1200	2250	1 1/4"	1 1/4"	1 1/4"	1 1/4"	365
TSB 2000	1300	2250	1 1/4"	1 1/4"	1 1/4"	1 1/4"	470
TSB 2500	1460	2200	1 1/4"	1 1/2"	1 1/2"	1 1/2"	587
TSB 3000	1460	2600	1 1/4"	1 1/2"	1 1/2"	1 1/2"	700
TSB 4000	1760	2300	1 1/4"	2"	2"	2"	862
TSB 5000	1760	2700	1 1/4"	2"	2"	2"	980

Tanpera Boilers with Replaceable Coils							
Device Type	ØD (mm)	H (mm)	C1	C2	C3	C4	Empty Weight (kg)
TDB 200	590	1300	1"	3/4"	3/4"	3/4"	85
TDB 300	590	1820	1"	1"	1"	1"	103
TDB 500	750	1620	1"	1"	1"	1"	160
TDB 800	950	1670	1 1/4"	1 1/4"	1 1/4"	1 1/4"	220
TDB 1000	950	2010	1 1/4"	1 1/4"	1 1/4"	1 1/4"	268
TDB 1500	1120	2250	1 1/4"	1 1/4"	1 1/4"	1 1/4"	395
TDB 2000	1260	2250	1 1/4"	1 1/4"	1 1/4"	1 1/4"	503
TDB 2500	1460	2200	1 1/4"	1 1/2"	1 1/2"	1 1/2"	678
TDB 3000	1460	2600	1 1/4"	1 1/2"	1 1/2"	1 1/2"	790
TDB 4000	1760	2300	1 1/4"	2"	2"	2"	945
TDB 5000	1760	2700	1 1/4"	2"	2"	2"	1205

11. Installation and Connections

11.1. Preliminary Preparations

- Installation must be performed only by an authorized service center or by personnel with the appropriate technical qualifications.
- The device should be visually inspected for any damage that may have occurred during transport.
- The installation area should be a location where there is no risk of freezing, the humidity level is appropriate, it is well-ventilated, and access to the device's control panel is easy.
- The surface on which the device is placed must be capable of safely supporting the full weight of the tanks.
- The boiler must be installed so that there is at least 90 cm of clearance around it and at least 120 cm of clearance around the control panel.



11.2. Installation and Assembly

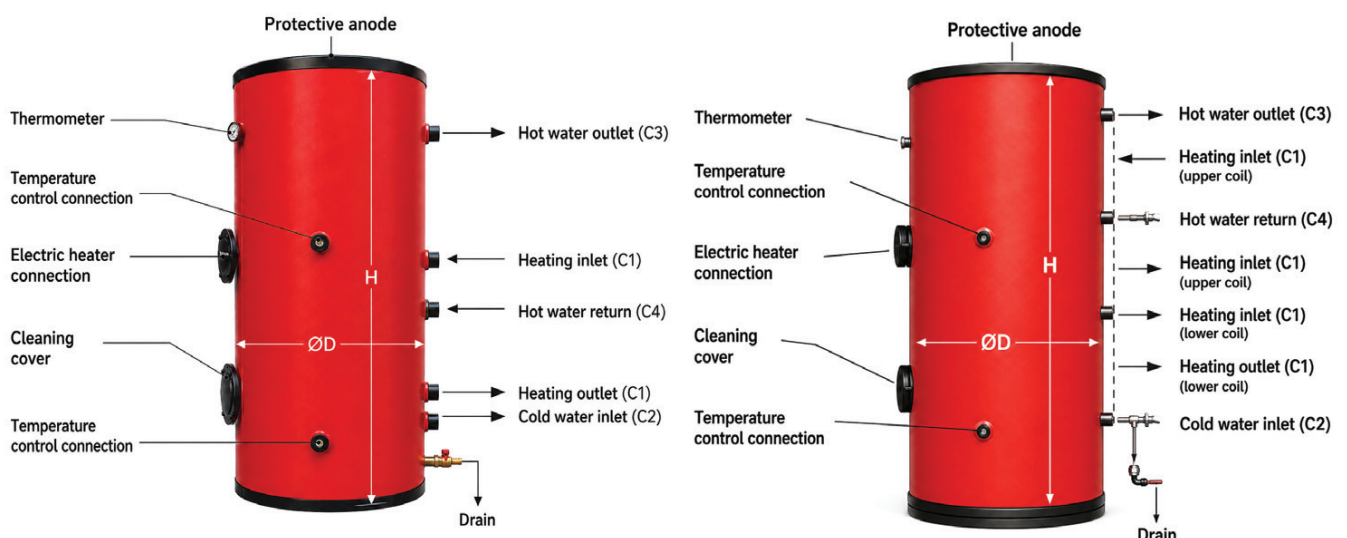
Tanpera Coil-Type Boilers are delivered with threaded connection ports.

- To install the unit, a level base strong enough to support the weight of the boiler must be prepared. The unit is packaged on a wooden pallet for easy transport. This pallet must be disassembled before installation.
- During the process of removing the device from the vehicle, reinstalling it, and mounting it, the device must not be exposed to factors that could damage it, such as vibrations or impacts.
- It should not be stored or used in damp or wet environments.
- When installing, adequate spacing should be maintained to facilitate maintenance and service.

11.3. Hydraulic Installation and Connections

Tanpera Coil Boilers are delivered with threaded connection ports.

- Before filling the system with water, make sure all connection points are clean and free of debris.
- The heating inlet (C1), cold water inlet (C2), hot water supply (C3), and hot water return (C4) connections must be made in accordance with the markings on the unit.
- The hot water supply line must be installed using materials that can withstand excessive expansion.
- The safety valve must be rated at the pressure specified by the manufacturer (typically 6 bar) and must be installed in a vertical position.
- The safety valve outlet must not be blocked; it must be connected to a vent line open to the atmosphere.
- If the system pressure exceeds the maximum operating pressure specified on the unit label, an additional expansion tank must be installed in the system.
- Where necessary, equipment such as check valves, filters, and ball valves should be installed.
- Teflon tape or flax and grease suitable for hot water should be used on all threaded connections.
- Before water is introduced into the system, the necessary preparations must be made for a pressure test to verify the connections after installation.



11.4. Electrical Installation and Connections

- Electrical connections must be made by a qualified electrician only when the power is turned off.
- Select a cable cross-section that matches the voltage (V), power (kW), and current (A) values listed on the device label. Use a halogen-free, TSE-approved cable that provides the appropriate cross-section.
- The boiler must be powered by a separate, grounded circuit.
- It is mandatory to install a ground-fault circuit interrupter (GFCI) and an automatic circuit breaker with the appropriate amperage rating on the circuit.
- The device should not be powered from an outlet; it must be connected directly to the circuit panel via a separate circuit.
- When making the electrical connection, ensure that the neutral and phase wires are connected correctly.
- The connections in the terminal block must be secure, and the cables must be heat-resistant.
- The connections for the thermostat, heating element, sensor, and control unit must be verified in accordance with the electrical diagram.
- Connect a grounding wire of at least 6 mm in diameter to the products' electrical distribution panels, and install these wires using a separate copper grounding rod or galvanized sheet metal, in accordance with the "Regulations on Grounding in Electrical Installations."

Any malfunctions in electrical panels, heating elements, or other electrical equipment resulting from failure to comply with the rules mentioned above are not covered by the warranty.

11.5. Post-Installation Checks

- The torque values for all mechanical connections should be checked one last time.
- Ensure that there are no loose connections, short circuits, or grounding faults in the electrical connections.
- The vibration and noise levels of the device during operation should be checked.
- The user should be informed about the operating principle of the safety valve and the requirements for periodic maintenance.

12. Commissioning

Once the device's installation and plumbing connections have been completed, the commissioning process should be carried out by following the steps below. These procedures must be performed by authorized technical personnel.

12.1. Pre-Commissioning Checks

Before beginning the water filling process, check the following items:

- **Connection Check:** Make sure that the plumbing connections (cold water inlet, hot water outlet, circulation, and coil inlet and outlet) are connected to the correct locations.
- **Safety Valve:** Verify that the safety valve is installed on the cold water inlet line and that the drain port is open.
- **Blind Plugs:** Check that unused fittings are sealed with leak-proof blind plugs.
- **Electricity (if applicable):** If there is an electric heater (heating element), do not turn on the power until the tank is filled with water.

12.2. Filling the Boiler with Water (Bleeding the Air)

It is essential to completely remove the air from the boiler to prevent corrosion and ensure efficient heating.

- Turn on a hot water faucet on the nearest or top floor of the building all the way. (This allows the air inside to escape.)
- Make sure the drain valve under the boilers is closed.
- Slowly open the cold water inlet valve on the water heater.
- Wait until a steady, strong stream of water comes out of the faucet. (At first, you'll hear air and the water will come out in spurts.)
- When water begins to flow steadily from the faucet, the water heater is fully filled. Turn off the hot water faucet.
- Visually inspect all connections and flanges for water leaks.

12.3. Starting Up the Heating Circuit (Coil)

Once the domestic hot water side is filled, you can start up the heat source (boiler, combi boiler, heat pump, etc.).

- Open the inlet and outlet valves for the coil (heating fluid).
- Start the heat source (boiler, etc.).
- If the system has a circulation pump, turn it on and make sure the heating fluid is circulating through the coil.
- Set the thermostat to the desired temperature.

12.4. Commissioning the Electric Heater (Optional)



Only operate the heating element when the water heater is completely full of water. Operating the unit without water will cause the heating element to burn out immediately and void the warranty.

- Check the temperature setting on the thermostat.
- Turn on the circuit breaker to restore power to the system.
- Check to see if the thermostat light is on or if the panel is active.

12.5. Initial Heating and Expansion Check

As water begins to heat up, its volume increases (it expands).

- If the system does not have an expansion tank or if the existing one is insufficient, it is normal for water to drip from the safety valve when the pressure rises. This is not a malfunction, but a safety measure.
- **Important Note (Flange Tightness):** After the initial warm-up (approximately 2–3 hours later), the flange bolts may loosen due to metal expansion and the gasket softening. To prevent leaks, it is recommended to recheck and retighten the bolts in a cross-pattern using a torque wrench.

13. After-Sales Services

13.1. Scope of Services and General Information

Our company adheres to high-quality standards throughout all processes, from product design to manufacturing. The Coil-Type Boiler you have purchased is covered by our company's warranty against manufacturing defects. To ensure the efficient and long-lasting use of your product, you must strictly follow the installation, commissioning, and maintenance instructions provided in this manual.

13.2. Authorized Service and Maintenance Services

Periodic maintenance, repairs, and replacement of spare parts for coil-type boilers must be performed exclusively by service centers authorized by our company. Interventions by unauthorized personnel may void the product's warranty and pose safety risks.

Service Request: For any malfunction or maintenance request, please contact our technical support team via phone or email.

Periodic Maintenance: To maintain the product's performance, it is recommended that certain procedures—such as checking the magnesium anode rod and cleaning the interior of the tank—be performed annually by an authorized service provider.

13.3. Spare Parts Supply

In accordance with the Regulation on After-Sales Services for Industrial Goods, our company undertakes to keep in stock the spare parts necessary for this product to function properly throughout its service life (the period specified by the Ministry, which is generally 10 years) and to supply them upon request for a fee.

14. Cleaning and Maintenance

To get the most out of your device and extend its service life, it is essential to perform the periodic maintenance listed below. Malfunctions resulting from lack of maintenance are not covered by the warranty.

Before beginning maintenance and cleaning procedures;

- Please remember that the water inside the boiler may be hot (60–90°C); take precautions to avoid the risk of burns.
- If there is an electric heater (heating element), turn off the power at the circuit breaker.
- Do not remove any covers or parts without first reducing the pressure inside the boiler (by turning off the water supply and opening a faucet).
- Check that there are no loose electrical connections in the control panel.
- The control panel grounding wire should be inspected. Check that there are no signs of wear, punctures, or overheating in the electrical cables.
- Check frequently to ensure that the components on the equipment are secure and clean.
- Have the unit serviced at least once a year. If the water quality is unsuitable (hard or very hard water) or if temperatures are high, have it serviced more frequently.
- Check to see if the unit's recirculation pump is running.
- During maintenance, open the drain valve to drain the water from the unit. While draining, the unit's drain must be connected to a drain pipe to prevent water from flooding the boiler room.
- Be sure to replace the magnesium anode rod. Tanpera service centers are authorized to perform maintenance and repairs. The seller is not responsible for any work performed by unauthorized personnel. Original replacement parts must be used for maintenance and repairs.

14.1. Magnesium Anode Inspection and Replacement

The magnesium anode rod is the “sacrificial” component that protects the inner surface (enamel coating) of your coil-type water heater against corrosion and perforation.

- **Inspection Period:** It should be inspected 6 months after the initial installation, and thereafter on an annual basis depending on the water hardness.
- **Replacement Criteria:** The anode rod gradually dissolves and wears down over time. If its diameter has been reduced by half or it has completely worn away, it must be replaced with a new one.
- **Procedure:** The anode rod is typically located on the upper flange or in a separate sleeve. The old rod is removed, and the new one is installed with a sealing element wrapped around its threads.

14.2. Boiler Interior Cleaning

Hard water causes scale to build up at the bottom of the water heater over time and coats the coil tubes with lime scale. This extends the heating time and increases energy consumption.

Discharge

- Close the cold water inlet valve. Open the drain valve to completely drain the water from the water heater.

Opening the Cleaning Cover

- Open the cleaning flange on the boiler by unscrewing the bolts.

Physical Cleaning

- Clean the mud and limescale deposits that have accumulated at the bottom of the boiler.
- If a layer of limescale has formed on the coil tubes, remove the limescale without damaging the enamel coating or the tubes (without using hard metal objects).
- Rinse the inside of the tank with a high-pressure water jet.

Close

- After cleaning, check the flange gasket. If it is crushed or worn, be sure to use a new gasket. Close the cover and tighten the bolts in a crisscross pattern.

14.3. Safety Valve Inspection

A safety valve is a device that prevents the appliance from exploding due to excessive pressure. The inside of the valve can become clogged due to limescale buildup.

- Once a month, check to see if water flows by gently moving the valve’s lever or trigger. If water flows, it means the mechanism is working.
- If no water comes out even after you turn on the faucet, the valve is clogged and must be replaced immediately.

14.4. Exterior Surface Cleaning

- To clean the outer casing of the boilers, use only a damp cloth and soapy water.
- Do not use paint thinner, gasoline, acidic detergents, or abrasive powders; these substances will damage the outer casing and paint.

14.5. Prolonged Non-Use (Risk of Freezing)

If the device will not be used for an extended period and there is a possibility that the ambient temperature will drop below 0°C (risk of freezing):

- Turn off the circuit breaker.
- Drain all the water from the boiler.
- Damage caused by freezing is not covered under the warranty.
- Potential Issues and Solutions

15. Potential Issues and Solutions

PROBLEM	POSSIBLE CAUSE	POSSIBLE SOLUTION
The water isn't getting hot at all.	The heat source (boiler, combi boiler, heat pump) may not be working.	Check to make sure the water heater is running and supplying hot water.
	There is air in the coil.	Bleed the air from the bleed valves at the coil inlet and outlet.
	The circulation pump isn't working.	Check the pump's plug and make sure it's working.
	(If it's electric) The circuit breaker has tripped or the thermostat is off.	Check the fuse and turn up the thermostat.
The water heats up but cools down quickly / Insufficient temperature.	The coil surface is heavily encrusted with lime scale.	Call for Service: The inside of the boiler and the coil need to be descaled.
	The thermostat setting is too low.	Check the thermostat setting.
	Hot water consumption exceeds the boiler's capacity.	Review your usage habits or device capacity.
Water is dripping from the safety valve.	During heating: Water dripping is normal due to expansion.	This is not a malfunction. Direct the dripping water into the drain.
	Continuous: The system pressure is too high (over 5 bar).	Have a "pressure reducer" installed on the inlet line.
	The valve is malfunctioning or clogged with limescale.	Call for Service: Replace the safety valve with a new one.
The boiler is leaking water from the flange.	The flange bolts are loose.	Tighten the bolts alternately using a torque wrench.
	The flange gasket has lost its effectiveness.	Call for Service: The gasket needs to be replaced.
The hot water smells bad or comes out cloudy.	The water may have been sitting in the boiler for a long time.	Drain the water from the boiler completely and refill it with fresh water.
	The magnesium anode has been depleted, and bacterial growth has begun.	Call for Service: Replace the anode rod and have the tank cleaned.
	Tap water is contaminated.	Check the filter at the building entrance. Then set the system temperature to 60–70°C and let it run for 5 minutes. This will kill the bacteria.
The device is making loud noises.	There is air in the plumbing system.	Bleed the air from the system.
	The water pressure is too high (water hammer).	Have a pressure reducer installed.



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