



**kensol**



## INSTALLATION AND OPERATION MANUAL

### STAINLESS STEEL TANK KENSOL

- KENSOL STAINLESS STEEL DHW HEAT EXCHANGER 200  
FOR HEAT PUMPS/COILS. SPIRAL 2.6M<sup>2</sup>/HEATER 3KW
- KENSOL STAINLESS STEEL DHW HEAT EXCHANGER 300  
FOR HEAT PUMPS/COILS. SPIRAL 3.1M<sup>2</sup>/HEATER 3KW

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# 1. Safety instructions

## 1.1 GENERAL INFORMATION

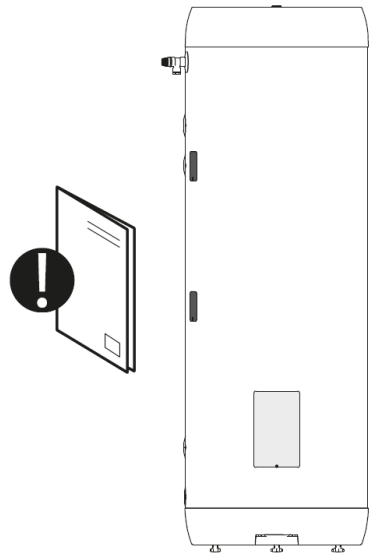
Before proceeding with the installation, maintenance, or adjustment of the water heater, carefully read the following safety instructions.

Installing or using the product in an improper manner may result in personal injury or property damage.

Retain this manual, as well as any related documentation, and keep them in an easily accessible place for future reference.

The manufacturer assumes that the end user will comply with the provided safety and operating instructions and that the installer will adhere to the maintenance manual, as well as the standards and regulations in effect at the time of installation.

Symbols used in the manual:



**WARNING**

Risk of serious injury or death.



**CAUTION**

Risk of minor or moderate injury or property damage.



**DO NOT**



**MUST**

## 1.2 SAFETY INSTRUCTIONS FOR USERS



**WARNING**



The overflow pipe from the safety valve **MUST NOT** be blocked or sealed.



The device **MUST NOT** be covered on the side of its front cover.



The original condition of the device **MUST NOT** be modified or altered.



Children **MUST NOT** be allowed to play with the device or approach it without supervision.





Maintenance and adjustments may only be performed by adults who understand how the device operates.









The device must be filled with water before its power is turned on.

### CAUTION




-  The device must not be exposed to frost, excessive pressure, excessive electrical voltage, or the effects of chlorides. See warranty conditions.
-  Persons with limited physical or intellectual abilities must not perform maintenance or adjustments on the device unless they have been instructed on its proper use by someone responsible for their safety.

## 1.3 SAFETY INSTRUCTIONS FOR INSTALLERS

### WARNING

-  The overflow pipe from the safety valve **MUST NOT** be blocked or sealed.
-  Persons with limited physical or intellectual abilities must not perform maintenance or adjustments on the device unless they have been instructed on its proper use by someone responsible for their safety.
-  The electrical power supply to the heater must be installed in accordance with local regulations, following standard procedures, and by a qualified electrician. The device is designed for continuous power supply.
-  The power supply cable must withstand temperatures up to +90°C and must include a strain relief component.
-  The device must be filled with water before its power is turned on.
-  Relevant regulations, standards, and instructions provided in this manual must be followed.

### CAUTION

-  The device must be installed in a room with a floor drain. The manufacturer is not responsible for any consequences resulting from failure to comply with this requirement.
-  The device, when installed vertically and leveled, must be secured to the floor or wall appropriate for the device's weight during operation. See the nameplate for details.
-  A service clearance of 40 cm must be maintained in front of the electrical connection cover and 10 cm above the highest point of the device.

## 2. Product description

### 2.1 PRODUCT IDENTIFICATION

Product identification details can be found on the nameplate attached to the device.

The nameplate specifies product data in accordance with the requirements of EN 12897:2016 and EN 60335-2-21 standards and includes other useful information.

For more information, refer to the Declaration of Conformity available on our website: [www.osohotwater.com](http://www.osohotwater.com)

Pressure vessels	EN 12897:2016
Safety	EN 60335-2-21
Welding	EN ISO 3834-2
Quality management	ISO 9001
Environmental management	ISO 14001
Occupational health and safety	ISO 45001

Products are designed and manufactured in accordance with the following standards:

Installation and Operating Manual for Kensol – Stainless Steel Tank

2.2 PURPOSE

The device is designed to supply domestic hot water. It is inteted for use with alternative energy sources.

Low Voltage Directive	2014/35/UE (LVD)
Electromagnetic Compatibility Directive	2014/30/UE (EMC)
Pressure Equipment Directive	2014/68/UE (PED)

2.3 CE MARKING



All safety valves must bear the CE mark and comply with the requirements of Directive 2014/68/EU (PED).

The CE mark on the product confirms its compliance with relevant Directives. The product meets the requirements of the following directives:

2.4 TECHNICAL DATA

Number NRF	Product code	Capacity [persons]	Weigh t [kg]	Diameter x height [mm]	Shipping volume [m3]	Heting time [h] at T=65°C	Heat loss [W]
800 0325	KTNW200 - 2.8 kW / 1x230V+HX 2.6m²	4,0	59	ø595 x 1270	0,49	-	58
800 0328	KTNW300 - 2.8 kW / 1x230V+HX 3.1m²	6,0	85	ø595 x 1750	0,66	-	69

Degree of protection provided by the device: IP 21

2.5 ENERGY DEVICE DATA (ERP) — TECHNICAL DATA SHEET (TDS)

Brand	Model number	Model name	ErP profile	ErP class	Energy efficiency [%]	AEC [kWh/a]	Thermostat Setting	Water Volume +40°C
OSO Hotwater AS	800 0325	KTNW200	-	B	-	-	70	-
OSO Hotwater AS	800 0328	KTNW300	-	B	-	-	70	-

Directive: 2010/30/EU Regulation: EU 812/2013 Directive: 2009/125/EC Regulation: EU 814/2013

Heat losses checked in accordance with the standard: EN 12897

## 3. Installation manual

### 3.1 SCOPE OF APPLICATION OF THE INSTRUCTIONS

800 0325 KTNW200

800 0328 KTNW300

### 3.2 SCOPE OF SUPPLY

Item No.	Quantity	Description
1	1	Safety valve PT
2	1	Hot water heater with built-in coil
3	2	Sensor socket
4	1	Thermostat
5	1	Heating element
6	1	Installation manual (this document)
7	3	Foot (factory-installed)

### 3.3 PRODUCT DIMENSIONS

All dimensions are provided in mm.

Product	A	B	SR	ø
KTNW200	0-40	1270	675	595
KTNW300	0-40	1750	675	595

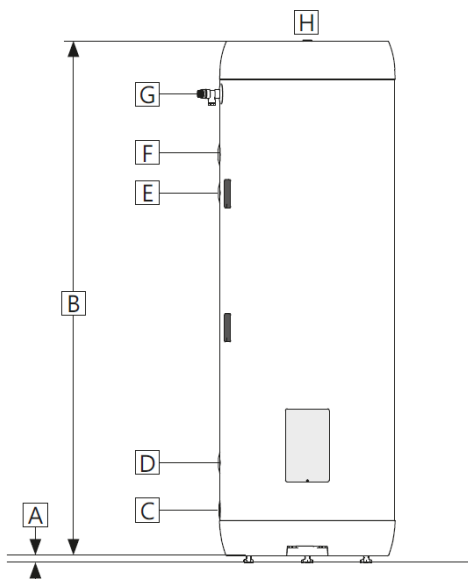
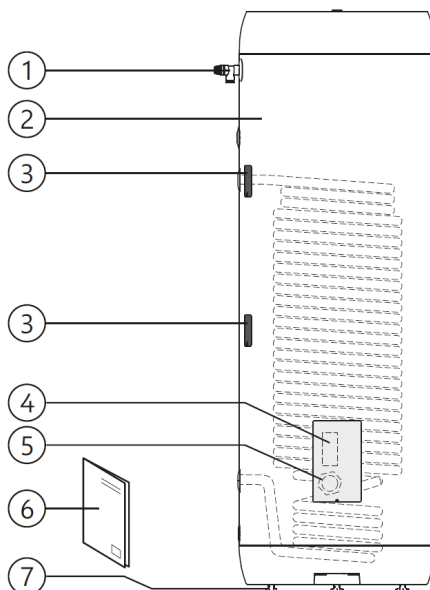
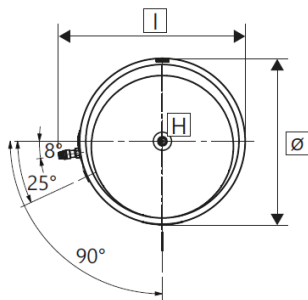
Tolerance  $\pm 5$  mm (excluding dimension A).

#### 3.3.1 Required Height for Connections

All dimensions are provided in mm.

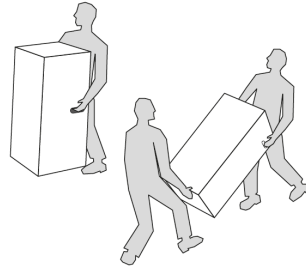
Product	C	D	E	F	H
KTNW200	155	316	926	926	1087
KTNW300	155	316	1231	1361	1567

Tolerance  $\pm 5$  mm.



### 3.3.2 Delivery

The device should be handled carefully, in its packaging, as shown in the illustration. Use the handles provided on the box.








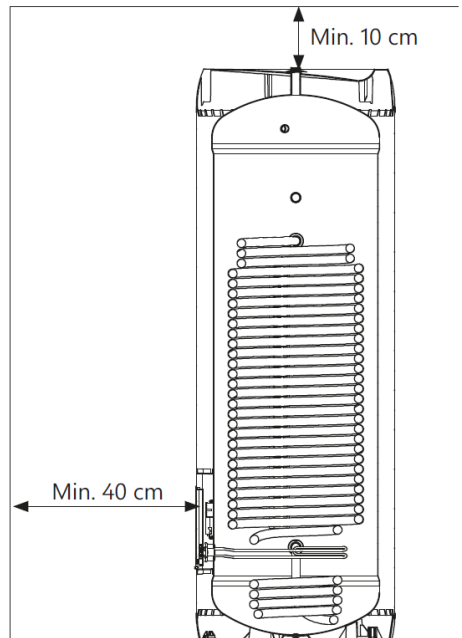
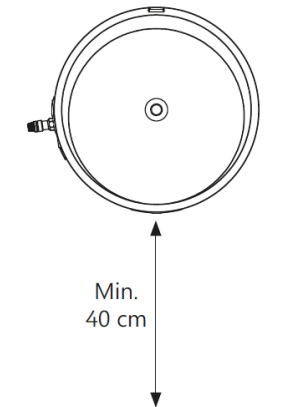
#### CAUTION

Do not lift the device by the pipe connections, valves, etc., as this could damage the product and affect its proper functioning.

### 3.4 LOCATION AND ORIENTATION REQUIREMENTS

#### CAUTION

-  The device must be installed in a room with a floor drain. The manufacturer is not responsible for any consequences resulting from failure to comply with this requirement.
-  The device should be installed in a dry location where frost is never a concern.
-  The device must be secured to the floor or wall appropriate for its weight during operation. Refer to the nameplate for details.
-  A service clearance of 40 cm must be maintained in front of the electrical connection cover and 10 cm above the highest point of the device.
-  The device must be easily accessible within the home for service and maintenance.



3.5 PIPE INSTALLATION

The device must be permanently connected to the main drainage system. The installation should be carried out using approved pipes of appropriate size. Relevant regulations and standards must be followed.

3.5.1 Connections - Dimensions and Functionality

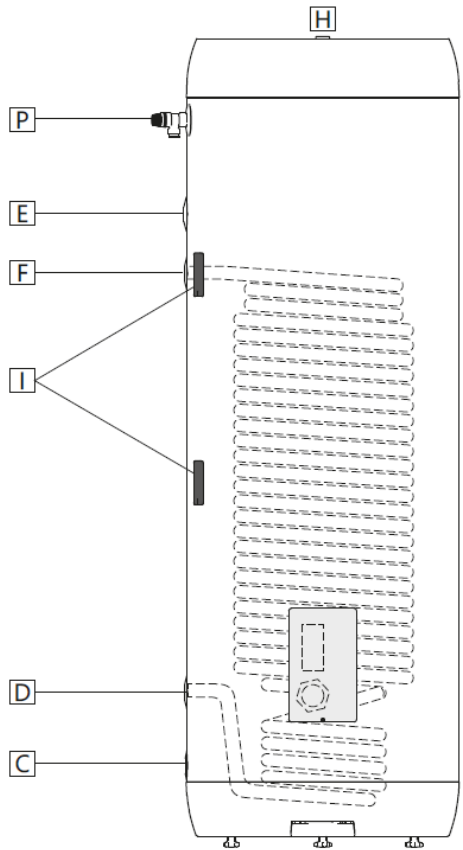
Conne- ction	Size	Purpose
C	G3/4" internal	Cold water inlet
D	3/4", internal thread	Return connection for coil
E	3/4", internal thread	Hot water circulation
F	3/4", internal thread	Flow connection for coil
H	3/4", internal thread	Hot water outlet
I	ø 6 / 8 mm	Sensor socket
P	G1/2" internal	Safety valve (P&T included)

3.5.2 Inlet Water Pressure

The performance of the device depends on the pressure of the incoming cold water. The water pressure should be between a minimum of 2 bar and a maximum of 6 bar over a 24-hour period. Excessive water pressure can be regulated by installing a pressure reducing valve.

3.5.3 Connecting Pipes

Pipes of appropriate size and quality must be connected to the device's inlets and secured with suitable sealing. The heating circuit must include a (not supplied) safety valve of the appropriate type (see page 3). The safety valve must not be clogged or blocked. Any overflow pipe from the safety valve must be clear and undamaged and installed without exposure to frost, with a downward slope towards the drain.






3.5.4 Pressure drop table - coil

Kensol KTNW200 – coil 2.6 m²						
Flow rate l/h	4500	3600	2700	1800	900	
Pressure drop mBar	2100	1390	840	421	128	
l/h – pressure drop 1 bar	3000					
Kensol KTNW300 – coil 3.1 m²						
Flow rate l/h	4500	3600	2700	1800	900	
Pressure drop mBar	2410	1610	946	479	150	
l/h – pressure drop 1 bar	2800					






### 3.5.4 Installation instructions

#### WARNING

-  The device must be filled with water before turning on the power.
-  The drain pipe from each safety device must be at least one pipe size larger than the nominal size of the outlet from the safety device (length up to 9 meters).  
 The drain pipe must run to the drain with a continuous slope, be uninterrupted (without any breaks), and must never freeze.

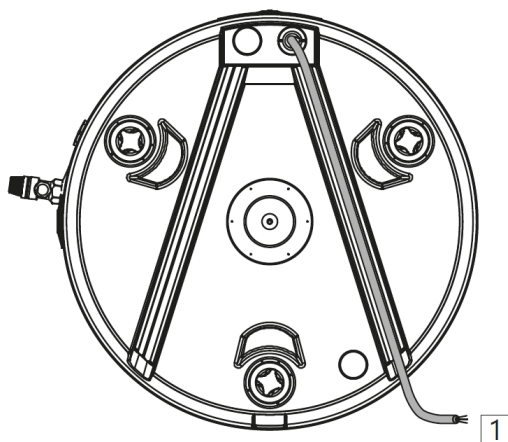
#### CAUTION

-  The device must be installed in a room with a floor drain. The manufacturer is not responsible for any consequences resulting from failure to comply with this requirement.
-  The device, when installed vertically and leveled, must be secured to the floor or wall appropriate for its weight during operation. Refer to the nameplate for details.
-  A service clearance of 40 cm must be maintained in front of the electrical connection cover and 10 cm above the highest point of the device.

### 3.5.5. Installation recommendations

#### RECCOMENDATION

- Maintain a clearance from the floor. Adjust the feet to be at least 15 mm away from the bottom of the device.
- The power supply cable (1) to the wall socket or wall box should be routed through one of the channels on the bottom of the device, as shown in the illustration.
- When installing a check valve, a pressure reducing valve and expansion tank should be installed to prevent dripping from the safety valve.
- If the maximum water pressure exceeds 6 bar over a 24-hour period, a pressure reducing valve and expansion tank should be installed.



### 3.6 INSTALLATION OF ELECTRICAL EQUIPMENT

When installing in a new home or changing an existing electrical configuration, permanent electrical connections must be made in accordance with applicable regulations. For replacing the device without changing the electrical configuration, a power supply cable with a plug for a wall socket can be used. All permanent electrical connections must be made by a qualified electrician. Relevant regulations and standards must be followed.

#### 3.6.1 Electrical components

Component	Notes
Operating thermostat	Adjustable range 50–75°C
Heating element	1-phase 230 V

#### 3.6.2 Electrical connections in the Junction Box

##### WARNING

There is a constant voltage present at terminals L and N. Before performing any electrical work, disconnect the power supply and ensure it cannot be turned back on during the work.

A) Blue wire (L) — live  
— connected to point A on the thermostat.

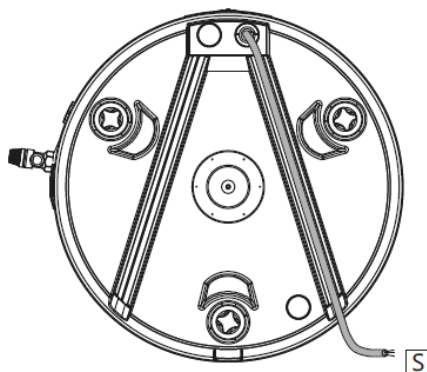
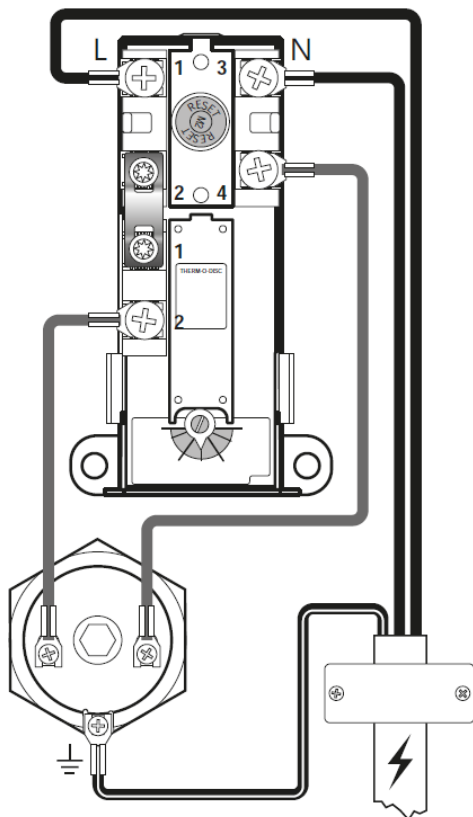
B) Brown wire (N) — neutral  
— connected to point B on the thermostat.

C) Green/Yellow striped wire — ground  
— connected to the terminal on the heating element (hexagonal, brass).






#### 3.6.3 Torque settings

Element	Tightening torque
G1.1/4" external - heating element	60 Nm (±5)
Thermostat screws (A and B)	2 Nm (±0,1)
Grounding screw on the heating element head	2 Nm (±0,1)





### 3.6.4 Installation instructions

#### WARNING

-  The device must be filled with water before turning on the power.
-  The electrical supply to the heater must be installed in accordance with local regulations, following accepted procedures, and by a qualified electrician. The device is intended for continuous power supply.
-  The power supply cable must withstand temperatures up to +90°C and must include a strain relief component.

#### CAUTION

-  A service clearance of 40 cm must be maintained in front of the electrical connection cover and 10 cm above the highest point of the device.
-  If the power supply cable is damaged, it must be replaced with a cable that meets installation quality requirements. The replacement must be performed by a qualified electrician.

### 3.6.5 Installation recommendations

#### RECOMMENDATION

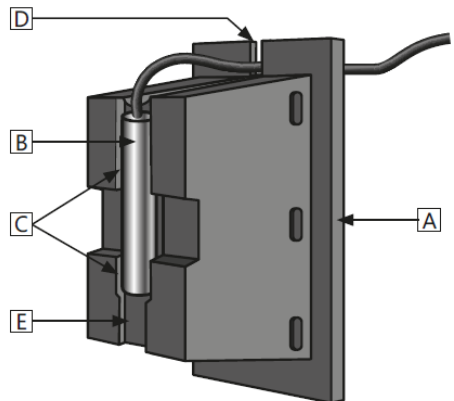
- The power supply cable (1) to the wall socket or wall box should be routed through one of the channels on the bottom of the device, as shown in the illustration.
- For devices with a power rating not exceeding 2 kW, use fuses with a rating above 10 A and cables larger than 1.5 mm<sup>2</sup>.  
For devices with a power rating not exceeding 3 kW, use fuses with a rating above 15 A and cables larger than 2.5 mm<sup>2</sup>.

### 3.6.6 Installing the Temperature Sensor

The device is equipped with a temperature sensor holder that accommodates temperature sensors with diameters of 6 or 8 mm. To install the temperature sensor, follow these instructions:

1. Remove the temperature sensor holder (A) from the tank body by grasping it and pulling it out with a straight motion.
2. Insert the temperature sensor (B) firmly into the appropriate grooves in the sensor holder. Then, guide the temperature sensor cable through the cable entry (D). An 8 mm sensor (as shown in the illustration) fits into the upper grooves (C), while a 6 mm sensor fits into the lower groove (E).
3. Reattach the sensor holder to the tank body, ensuring that the holder is fully inserted and that there is proper contact between the sensor and the inner surface of the stainless steel tank.

Ensure that the sensor cable is correctly routed through the cable entry (D) to avoid any potential cable damage.



## 4. Initial startup

### 4.1 Filling with water

First, check that all pipes are properly connected. Then, follow these steps:

- Open the hot water tap and leave it open.
- Open the cold water supply to the unit.

Check that water flows freely from the open hot water tap, without any air bubbles. Close the hot water tap. For filling or draining the heat exchanger, refer to the instructions for the external heat source.

### 4.2 Connecting Power

Once the boiler is filled with water, you can turn on the power supply.

### 4.3 Checklist

- Ensure that all pipe connections to and from the unit are secure and do not leak.
- Ensure that the electrical supply to the unit is protected from mechanical, thermal, and chemical damage.
- Ensure that any discharge pipe from the safety valve is clear and undamaged, installed without exposure to frost, and has a continuous slope towards the drain.
- Ensure that the unit is standing stably, vertically, and is level on the floor.

### 4.5 Draining water

#### WARNING

The water temperature in the unit may exceed 75°C and pose a risk of burns. Before starting to drain, open the hot water tap to maximum pressure/temperature for at least 3 minutes.

A) Disconnect the electrical power supply.

B) Close the cold water supply.

C) Fully open the hot water tap.

— and leave it open (to prevent the creation of a vacuum).

D) Disconnect the cold water supply lines (D). This will allow the water to drain from the unit. Before refilling the unit, ensure that the cold water supply line is reattached to the connection (D) with appropriate sealing. After restarting the unit, check for leaks at the connection.

### 4.5.1 Draining the Heat Exchanger

Follow the instructions for the external heat source when draining. Then disconnect the return line from the heat exchanger. Drain the heat exchanger through its lower connection.

Note: The lowest point of the heat exchanger contains a riser pipe (C), where liquid may accumulate. To ensure complete draining of the heat exchanger, use compressed air on the upper connection of the heat exchanger to expel all liquid.

### 4.6 Handover to the end user

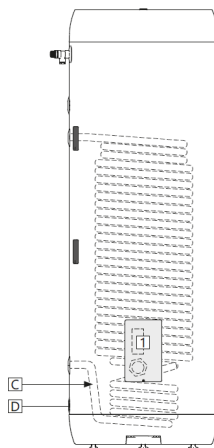
#### INSTALLER'S RESPONSIBILITIES:

Provide a brief instruction to the end user on safety and maintenance.

Provide a brief instruction to the end user on settings and draining of the unit.

Hand over this manual to the end user.

Complete the product nameplate with the correct contact details.



## 5. User manual

### 5.1 Settings

**5.1.1 Thermostat Adjustment** The device's thermostat allows for temperature regulation between 50–75°C. The thermostat should not be set below 60°C to prevent bacterial growth.

Adjusting the Temperature:

A) Disconnect the electrical power.

B) Remove the cover (1) using a screwdriver.

C) Adjust the temperature setting on the thermostat using the adjustment knob (3).

D) The thermostat allows regulation in the range of 50–75°C.

Before reconnecting the electrical power, replace the cover (1).

#### 5.1.2 Resetting the Safety Thermostat

The safety thermostat disconnects power if there is a risk of overheating. It can be reset by removing the cover (1) and pressing the red "Safety" button (2). If the thermostat continues to trip, contact a technician.

#### 5.1.3 Adjusting the Feet

The product comes with three adjustable feet, which can be adjusted between 0–40 mm. Unscrew the feet to a minimum of 15 mm from the bottom of the device. Then, adjust each foot individually until the device is stable, vertical, and level on the floor.

### 5.2 Maintenance

All components of the device must be inspected annually by a qualified adult with the appropriate knowledge. The annual inspection includes the following tasks:

- Ensure that all pipe connections and fittings are tightened and leak-free.
- Inspect Electrical Connections:

A) Disconnect the device's electrical power and ensure it cannot be turned back on during the inspection.

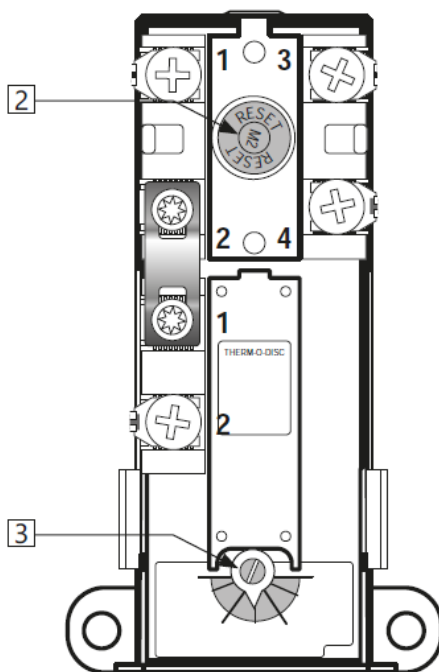
B) Remove the cover from the junction box (1) and check all connections; refer to the tightening torque in Table 3.6.4.

C) Replace the junction box cover (1) before reconnecting the electrical power.

- The annual inspection of the safety valve must be conducted according to the procedure below.

### WARNING

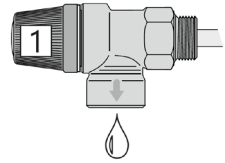
The junction box contains live voltage. Before performing any electrical work, disconnect the power supply and ensure it cannot be reactivated during the maintenance.





**Annual Safety Valve Inspection:**

- Turn the valve handle (1) counterclockwise (to the left) to the open position for 1 minute.
- Visually inspect to ensure that water flows freely into the drain.
- YES = OK: Close the valve by turning the handle (1) clockwise (to the right) until you feel the valve is securely closed.
- NO = NOT OK: Disconnect the electrical power supply / Shut off the water supply. Contact a technician.



## 6. Troubleshooting

### TROUBLESHOOTING

Problem	Possible cause of malfunction	Possible solution
No hot water	Power outage	Check if the fuse is set and if the earth leakage circuit breaker has tripped.
	The thermostat has tripped	Press the "Safety" button on the safety thermostat; see the "User Manual" for details.
	The heating element is faulty	Replace the heating element. Call an authorized technician.
	Leak in the hot water pipe	Check as follows: (a) close all hot water taps; (b) wait 2 to 3 hours; (c) touch the hot water outlet pipe to check if it is hot. If it is, there is a leak in the hot water pipe or elsewhere. Call an authorized technician.
Leak / Dripping from the safety valve or a visible water mark on the floor near the boiler	The pressure reducing valve, water meter, or check valve on the cold water inlet is blocked. Water pressure supplied to the household is too high.	Install an expansion tank to compensate for the increase in volume associated with heating water. Install a pressure reducing valve to stabilize the water pressure within the household. Adjust the pressure reducing valve according to the pressure in the expansion tank. Call an authorized technician.
	The safety valve is worn out or particles are trapped between the diaphragm and the valve seat due to water contamination.	Attempt to flush out the valve with water. Open the valve for about 1 minute. If the valve continues to leak, it needs to be replaced. Contact an authorized technician.
	Leak from the heating element	Check the following: (a) Disconnect the electrical power; (b) Remove the cover; (c) Visually inspect for any leaks from the heating element. If a leak is present, replace the gasket or the heating element itself. Contact an authorized technician.

Not enough hot water	High water usage in the household	Increase the thermostat setting to 75°C; refer to the "User Manual." Switch to a larger water heater if necessary. Contact an authorized technician.
Temperature insufficiently high	The thermostat is set to a low temperature	Increase the thermostat setting to 75°C; refer to the "User Manual."
	Use the hot water taps more frequently than the cold ones	Call an authorized technician.
Blowing fuse / tripping ground fault interrupter	Possible fault in the heater's electrical system.	Check as follows: (a) Disconnect the electrical power. (b) Remove the cover. (c) Visually inspect the connection box for any issues. If any problems are found, call an authorized technician for inspection. Replace the cover afterwards.
Long time for hot water to reach the tap	Long length of piping between the water heater and the faucet.	Install a circulation pipe or heating cable on the hot water pipe. Alternatively, you can install an additional water heater closer to the faucet. Call an authorized technician.
Water hammering in pipes when closing the hot water tap	Rapidly closing the faucet causes a significant increase in pressure.	This is a completely normal phenomenon. If it is troublesome, install an AX expansion tank. Call an authorized technician.

## 7. Warranty conditions

### 1. Scope

Kensol Sp. z o.o. guarantees that the Product will be: I) manufactured in accordance with the specifications, and II) free from material and manufacturing defects for a period of 5 years from the date of purchase, provided that the following conditions are met. All components are guaranteed to be free from material and manufacturing defects for 2 years. Warranty for products purchased by commercial entities or installed for commercial use is subject solely to the Purchase Act and the following terms and conditions of the warranty.

### 2. Coverage

In the event of a defect and receipt of a valid claim within the statutory warranty period, Kensol, at its sole discretion and

within the limits of the law, will: I) repair the defect, or II) replace the defective product with a new one of identical or similar function, or III) refund the purchase price of the product. If a defect occurs and a valid claim is made after the statutory warranty period but within the extended warranty period, Kensol will provide a new product that is identical to or functionally equivalent to the defective one at no charge. In such cases, Kensol will not cover any additional costs associated with the replacement. Products or components replaced under warranty claims become the property of the claimant. Replacement of a product or component does not extend the original warranty period.

### 3. Prerequisites

The product is designed to accommodate the water quality found in most public water supplies. However, certain water properties (see below) can have a very negative impact on the expected lifespan

of the product (e.g., causing corrosion). If there is any uncertainty regarding water quality, the local water supplier must be able to provide the necessary information.

The warranty is valid only if the following conditions are met:

- The product has been installed in accordance with the attached installation instructions and all relevant regulations, standards, and requirements in force at the time of installation.
- The product has not been modified, altered, subjected to unusual conditions, and no factory-installed or supplied parts have been removed.
- The product has been connected only to public water supplies, has been used regularly, and the water quality conforms to the following parameters:
  - Chlorides < 250 mg/l\*
  - Electrical Conductivity (EC) at 25°C < 230 µS/cm\* \*For higher values, an anode must be installed before filling the product with water.
- The heating element has not been exposed to water hardness exceeding 10° dH (90 mg/l CaCO<sub>3</sub>).
- Any pipe disinfection has been conducted without affecting the product. The product must be isolated from any forms of chlorination.
- The product has been used regularly since installation. If the product will not be used for 60 days or longer, it must be drained.
- Service and maintenance have been carried out by a competent person in accordance with the requirements specified in the attached installation instructions and all relevant technical regulations. All service components used are original OSO spare parts.
- Any warranty-related costs have been approved in writing by OSO before being incurred.
- Proof of purchase and/or installation receipt, a water sample, and the defective product must be provided to OSO upon request.
- Failure to comply with the above conditions may result in damage to the product and water leakage.

Failure to comply with the above conditions may result in damage to the product and water leakage.

#### 4. Limitations

The warranty does not cover:

- Any defects or costs incurred due to improper installation or use, lack of maintenance, neglect, misuse, incorrect modifications or repairs, or any defects arising from alterations to the original condition of the product.
- Any consequential damages or indirect losses resulting from defects in the product or failure to deliver the product.
- Any damage caused by frost, overpressure, power surges, boiling water, or chlorination.
- Defects related to standing water if the product has not been used for more than 60 consecutive days.
- Pipes and equipment connected to the product.
- Damage during transport. The carrier should be notified of such damage upon receipt.
- Costs arising from difficult access to the product for servicing.

This warranty does not limit the statutory rights of the Buyer. To initiate a claim, please send a complaint to reklamacje@kensos.pl or contact us by phone at +48 603 909 013.

#### 7.1 Customer Service

If you encounter issues that cannot be resolved by referring to the troubleshooting guide included in this installation manual (section 6.1), please contact:

- A) The installer who provided the product.
- B) Kensos HVAC, Tel: +48 603 909 013 / hvac@kensos.pl



## 8. Disassembly of the product

### 8.1 Disassembly

- A) Disconnect the heat source.
- B) Shut off the cold water supply.
- C) Drain the water from the product – see section 4.4.
- D) Disconnect all piping connections.
- E) The product can now be disassembled.

### 8.2 Returns

This product is recyclable and should be delivered to a recycling point. If replacing the product with a new one, the installer may take the old water heater for recycling.

**KENSOL Sp. z o.o.**  
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