Saga - S CHARGE 200-300 I.

EN



SAFETY INFORMATION O&M INFORMATION INSTALLATION INSTRUCTIONS TDS - TECHNICAL DATA SHEET

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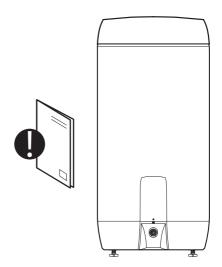
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# **1. SAFETY INSTRUCTIONS**

## 1.1 General information

- Read the following safety instructions carefully before installing, maintaining or adjusting the water heater.
- Personal injury or material damage may result if the product is not installed or used in the intended manner.
- Keep this manual and other relevant documents where they are accessible for future reference.
- The manufacturer assumes compliance (by the end user) with the safety, operating and maintenance instructions supplied and (by the installer) with the fitting manual and relevant standards and regulations in effect on the date of installation.



Symbols used in this manual:

▲ WARNING Could cause serious injury or death	
	Could cause minor or moderate injury or damage to property
$\oslash$	DO NOT
0	DO

# 1.2 Safety instructions for users

	⚠ WARNING				
$\oslash$	The overflow from the safety valve must NOT be sealed or plugged.				
$\oslash$	Do NOT cover the water heater junction box. The control unit must not be covered in any way.				
$\oslash$	The product must NOT be modified or changed from its original state.				
0	Children must NOT play with the product or go near it without supervision.				
•	Any external control of the power supply to the product must be approved by OSO.				
0	The water heater shall be filled with water before the power is switched on.				
0	Maintenance/configuration shall only be carried out by persons over 18 years of age, with suf- ficient understanding.				

	▲ CAUTION
$\oslash$	The water heater shall be placed in a dry and permanently frost-free position. The product must not be exposed to frost, over-pressure, over-voltage or chlorine treatment. See warranty conditions.
$\oslash$	Maintenance/configuration shall not be carried out by persons of diminished physical or mental ca- pacity, unless they have been instructed in the correct use by someone responsible for their safety.

# 1.3 Safety instructions for installers

	⚠ WARNING
$\oslash$	The overflow from the safety valve must NOT be sealed or plugged.
0	Any external control of the power supply to the product must be approved by OSO.
0	Any overflow pipe from safety valves must be of a suitable size, clear, undamaged and frost- free with a fall to the drain.
0	Fixed electrical fittings must be used for installations in domestic properties in accordance with NEK 400:2010 <i>or later,</i> as well as in the event of any changes to the existing electrical installations in accordance with the regulations. The supplied mains cable with plug for a wall socket can be used when installing the product <i>without</i> requiring any alteration of the electrical installations as installed in accordance with NEK 400:2006 <i>or earlier</i> .
0	The factory-fitted mains cable is certified up to 90°C (H05V2V2-F) and can also be used for permanent installation. A strain reliever must be installed in the event of replacement.
0	The water heater shall be filled with water before the power is switched on.
0	The relevant regulations and standards, as well as this installation manual, must be followed.

	▲ CAUTION
0	The water heater must be placed in a room with a drain, in accordance with the wetroom stand- ard/latest TEK. Alternatively, fit an automatic stop valve with sensor and overflow from safety valve to drain. Product liability will only apply if this is followed.
0	The water heater should be properly aligned vertically and horizontally, on a floor or wall suit- able for the total weight of the product when in operation. See data plate.
0	The water heater must be installed with a clearance for servicing of 40 cm in front of the electrical cover / 10 cm above the highest point. The water heater must have a clearance for servicing of 40 cm in front of the electric junction box. The product must be easily accessible for use and maintenance and must not be covered in any way.

# 2. PRODUCT DESCRIPTION

### 2.1 Product identification

Identification details for your product can be found on the rating plate affixed to the product. The rating plate contains details of the product in accordance with EN 12897:2016 and EN 60335-2-21 in addition to other useful data. See the Declaration of Conformity at www.osohotwater.com for more information.

OSO products are designed and manufactured in accordance with:

- Pressure vessel standard EN 12897:2016 (water heater)
- Safety standard EN 60335-2-21 (water heater)
- Safety standard IEC 60730 (Charge device)

OSO Hotwater AS is certified for

Quality	ISO 9001
Environment	ISO 14001
<ul> <li>Working Environment</li> </ul>	ISO 45001

### 2.2 Intended use

Domestic water heaters in the Saga range are designed to supply homes with hot running water. OSO Charge R2.2 is designed for the control and management of power consumption in selected

OSO Saga 200 and 300 l. domestic water heaters.

# 2.3 CE marking

The CE mark shows that the product complies with the relevant directives. See Declaration of Conformity at www.osohotwater.com for more information.

The product complies with directives for:

- Low voltage
   LVD 2014/35/EU
- Electromagnetic compatibility EMC 2014/30/EU
- Radio equipment directive RED 2014/53/EU

Pressurised equipment directive PED 2014/68/EU

Any safety valve(s) used should be CE-marked and comply with the PED 2014/68/EU.

## 2.4 Technical data

2.4.1 Saga domestic water heater

OSO product no.	Product code:	Capacity persons	Weight kg.	Dia. x Height mm.	Freight vol. m <sup>3</sup>	Thermo- stat set- ting °C	Volume 40°C water	Heating time hours ∆t 65°C	Heat loss W
11011771	S Charge 200 - 2.8kW/1x230V	3.5	40.5	ø570x1260	0.47	85*	355	7.3	66
11011772	S Charge 300 - 2.8kW/1x230V	5.5	52.5	ø570x1710	0.63	85*	539	7.2	86

The products are classified as IP21.

\*Overridden by Charge smartcontrol.

#### 2.4.2 Charge smartcontrol

OSO product no.	Product code:	Description	Dimensions, control unit W x H x D mm.	Dimension Temp. sen- sor	Length of temp. sensor - mm.
11008779	CHARGE R2.2 - 16A/1x230,EU, WiFi white	Control unit	165x315x60	-	-
11008770	CHARGE R2.2 - 16A/1x230,EU, WiFi black	Control unit	165x315x60	-	-
11008768	CHARGE Temp. sensor/200L – G1/2M	Temp. sensor	-	G 1/2"	832
11008760	CHARGE Temp. sensor/300L – G1/2M	Temp. sensor	-	G 1/2"	1282

The products are classified as IP44.

## 2.5 ErP data - Technical Data Sheet

Brand	OSO	Model name		Heat	Volume		
Dialiu	Product no.	Model name	Rating	loss W	L		
OSO Hotwater AS	11011771	Saga - S Charge 200	С	66	194		
OSO Hotwater AS	11011772	Saga - S Charge 300		86	281		
Regulation: 2017/13	Regulation: 2017/1369/EU - Regulation: EU 812/2013Directive: 2009/125/EC - Regulation: EU 814/2013						
Heat loss tested acc. to standard EN 12897:2016							
Spare parts, and Spartian 5.9							

Spare parts, see Section 5.8.

# **3. INSTALLATION INSTRUCTIONS**

# 3.1 Products covered by these instructions

Saga - S Charge 200 Saga - S Charge 300 Charge R2.2/200L – 16A/1x230V - EU WiFi Charge R2.2/300L – 16A/1x230V - EU WiFi

## 3.2 Included in delivery

Ref no.	Num- ber of	Description		
1	1	Top cover (factory-fitted)		
2	1	Mixer valve (factory-fitted)		
3	1	Charge temp. sensor (factory-fitted)		
4	1	Charge control unit with supply cable and strain relievers		
5	1	Installation manual (this document)		
6	1	Strain reliever for 200 I heater, 2.5 mm <sup>2</sup>		
7	1	Water heater		
8	1	Thermostat (factory-fitted)		
9	1	Heating element (factory-fitted)		
10	1	Safety valve (factory-fitted)		
11	3	Feet (factory-fitted)		

## 3.3 Product dimensions, heater

All dimensions in mm.

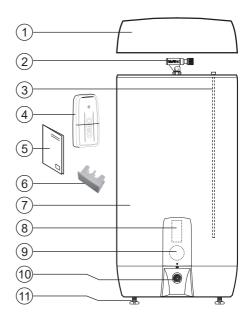
Product.	A	В	С	D	E	ø
S 200	0-40	1260	1210	125	655	570
S 300	0-40	1710	1660	125	655	570

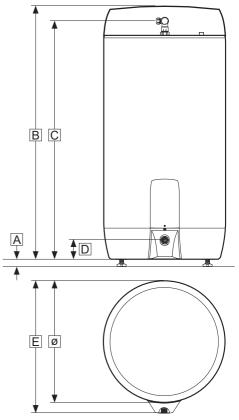
Tolerance +/- 5 mm (not dimension A).

#### 3.3.1 Adjusting the feet

The product is equipped with three factory-fitted feet (10), adjustable from 0-40 mm. Carefully lie the product down onto its back, preferably on the packaging so as to avoid cosmetic damage.

- 1. Screw the feet out a minimum of 15 mm from the bottom of the product.
- 2. Place the product in a suitable location in the home, see Section 1.3.
- 3. Adjust the feet (10) individually until the product is in a stable position both vertically and horizontally.





### 3.4 Product dimensions, control unit

All dimensions in mm.

Product	А	В	С
CHARGE R2.2 - 16A/1x230, EU, WiFi	165	315	60

Temp. sensor All dimensions in mm.

Product.	D	Ø conn.
CHARGE Temp. sensor/200L – G1/2M	832	G 1/2"
CHARGE Temp. sensor/300L – G1/2M	1282	G 1/2"

The temperature sensor in Saga S Charge is factory-fitted.

# ▲ CAUTION

Cables and similar must not be used to lift the product, as this could cause malfunctions.

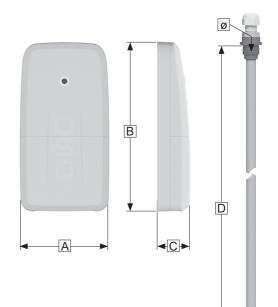
#### 3.4.1 Product description - control unit

The control unit controls the heating element of the heater using hybrid relays. Based on temperature readings, consumption and varying electricity prices, the product will create a plan to heat water for the anticipated consumption in the most costefficient manner possible. The product communicates with OSO Energy's cloud solution via WiFi.

OSO Charge syncs continuously with Norpool and will also take into account variations in the power grid in order to optimise the heating times of the heater.

3.4.2 Technical data	-	control	unit
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Data	Description
Туре	Integrated (1.C Action - IEC 60730-2-9) - intended for indoor use only
Power supply	230V - 50Hz rated
Maximum load	3000 W (max. 16A)
Ambient temperature	0-40°C (max.)
Impulse voltage	2500 V
Degree of contamination	2
IP Class	IP 44

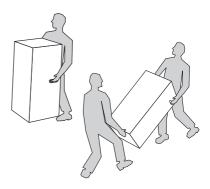


#### 3.4.3 Delivery

The product should be transported carefully as shown, with packaging. Use the handles in the box.

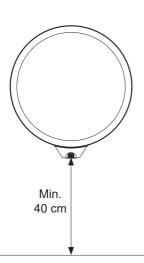
# $\triangle$ CAUTION

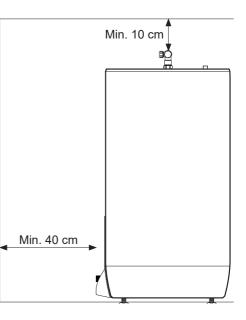
Pipe stubs, valves, cables etc. should not be used to lift the product, as this could cause malfunctions.



# 3.5 Requirements for installation location and positioning

	▲ CAUTION
0	The heater must be placed in a room with a drain, in accordance with the wetroom standard/ current regulations. Alternatively, fit an automatic stop valve with sensor and overflow from safety valve to drain. Product liability will only apply if this is followed.
•	The product shall be placed in a dry and permanently frost-free position.
0	The product shall be placed on a floor or wall suitable for the total weight of the product when in operation. See data plate.
•	The heater must be installed with a clearance for servicing of 40 cm in front of the electrical junction box cover / 10 cm above the highest point.
0	The product shall be easily accessible in the home for servicing and maintenance.
$\oslash$	The control unit must not be covered in any way.
0	The control unit must be wall-mounted. Use suitable screws, max. ø3.5 mm (not supplied).





## 3.6 Control unit installation

No.	Component	Description		
1	Lower cover	Junction box cover		
2	Fastening screws	Screws for the lower cover		
3	Holes for sus- pension screws	Use screws with a dimension of max. ø3.5 mm (not supplied).		
4	Pairing/operating status button	For WiFi pairing. The LED light indicates the status of the unit.		
5	Supply cable, control unit	Power supply to control unit.		
6	Supply cable, heater	Power supply from the control unit to the junction box of the heater.		
7	Sensor wire	From temp. sensor in water heater to control unit.		
8	AUX input	For any optional equipment (plugged)		

#### 3.6.1 Control unit - components

#### 3.6.2 Requirements for installation location and positioning

Fixed electrical fittings must be used for installations in domestic properties in accordance with NEK 400:2010 or later, as well as in the event of any changes to the property's existing electrical installations in accordance with the regulations. The supplied mains cable with plug for a wall socket can be used when installing the product without requiring any alteration of the home's electrical installations as installed in accordance with NEK 400:2006 or earlier. Any fixed electric fittings must be installed by an authorised electrician.

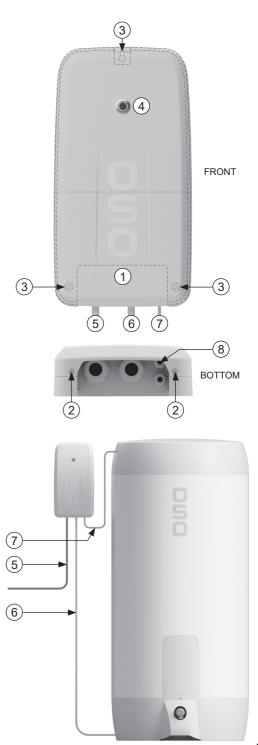
#### 3.6.3 Installation of control unit on a wall

- A. Find a suitable position for the control unit on the wall near the heater, see table 3.5.
- B. The unit must be attached to the wall using three (3) suitable screws in the suspension holes (3) in accordance with Section D and E.
- C. Remove the lower cover (1) of the unit by unscrewing the two fastening screws (2).
- D. Screw the upper suspension screw into the wall. Hang the control unit on this using the suspension hole (3) at the top rear of the unit.
- E. Ensure that the control unit is level and attach it fully to the wall using screws in the lower suspension holes (3).

The control unit is equipped with a plugged AUX input (8) for any optional equipment.

Instructions for connecting the sensor wire from the temp. sensor are described in Section 3.8.3.

Instructions for connecting the power supply to the heater and control unit are described in Sections 3.8.4 and 3.8.5.



#### 3.7 Pipe installation, heater

The product is designed to be permanently connected to the mains water supply. Approved pipes of the correct size should be used for installation. The relevant standards and regulations must be followed.

Product.	COLD	HOT WA-	Overflow	Temp.sen-
	WATER	TER	(2)	sor (3)
S 200 -	15 mm	15 mm	3/4"	1/2"
300	comp.	comp.	internal	internal

#### 3.7.1 Incoming water pressure

The efficiency of the product depends on the incoming cold water pressure. The water pressure should be min. 2 bar and max. 6 bar throughout the day. Excessive water pressure can be adjusted by installing a pressure reduction valve.

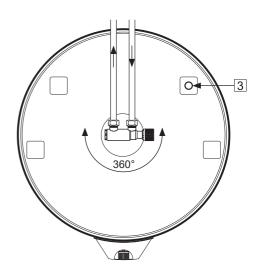
# 3.7.2 Fitting cold and hot water pipes (CW-HW) and overflow pipes

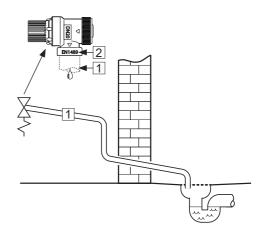
- A) Turn the mixer valve to the desired position.
- Tighten ring clamp onto the cylinder (see 3.5.4)
- B) CW/HW pipes of suitable sizes routed to mixing valve and tightened (see 3.5.4)
- C) Any overflow pipe (1) > 18 mm. interior must be run to the safety valve.
  - Connected to waste 3/4" internal thread.
  - Clear, undamaged and frost-free with a fall to the drain.

3.7.3 Charge smart management - temp. sensor The smart management temp. sensor is located in the connection (3) and is factory-fitted.

#### 3.7.4 Torque settings

Component	Torque
Ring clamp connection to CW/HW (Ø15)	40 Nm (+/- 3)
Ring clamp connection to cylinder (Ø22)	60 Nm (+/- 5)





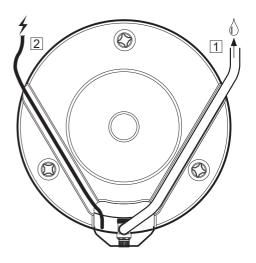
# 3.7.5 Fitting instructions

0	The product should be filled with water before the power is switched on.
0	Any overflow pipe from the safety valve must be of a suitable size, clear, undamaged and frost-free with a fall to the drain.

	▲ CAUTION
0	The product should be placed in a room with a drain, in accordance with the wetroom standard / latest regulations. Alternatively, fit an automatic stop valve with sensor and overflow from safety valve to drain. Product liability will only apply if this is followed.
0	The product should be properly aligned vertically and horizontally, on a floor or wall suit- able for the total weight of the product when in operation. See rating plate.
0	The product must be installed with clearance for servicing of 40 cm in front of the electrical cover/10 cm above the highest point.

## 3.7.6 Fitting recommendation

	RECOMMENDATION
-	Allow clearance to the floor. Screw the feet out a minimum of 15 mm from the bottom of the product.
	Any overflow pipe from the safety valve to the drain (1) and the power supply cable from the control
-	unit (2) should be hidden under the channels in the bottom of the product.
	If a blanked non-return valve is fitted in the home, a reduction valve and expansion vessel should
-	be fitted (to stop dripping from the safety valve).
-	If the maximum water pressure exceeds 6 bar in a 24-hour period, a reduction valve and expansion vessel should be fitted.
-	For installation in rooms that do not conform to the wetroom standard, a watertight drip tray with overflow pipe of≥ 18 mm inside diameter should be fitted under the product, in addition to an automatic stop cock with sensor. This will prevent potential material damage.



#### 3.8 Electrical installation

	🛆 WARNING		
0	The water heater shall be filled with water before the power is switched on, otherwise the warranty will be void.		
0	Fixed electrical fittings must be used for installations in domestic properties in accordance with NEK 400:2010 or later, as well as in the event of any changes to the property's existing electrical installations in accordance with the regulations. The supplied mains cable with plug for a wall socket can be used when installing the product without requiring any alteration of the home's electrical installations as installed in accordance with NEK 400:2006 or earlier. Any fixed electric fittings must be installed by an authorised electrician.		
0	In the event that the cable is damaged, the cable must be replaced by a suitable cable with the correct specification.		
0	Electrical cables must be installed in such a way that they are not exposed to damaging mechanical, thermal or chemical impact. Strain relievers must be used. All damaged cables must be replaced.		

#### 3.8.1 Electrical components - control unit

Component	Note
Control unit	With junction box
Supply cable, control unit	With socket, included
Supply cable, heater (6)	Included, pre-connected to water heater
Sensor wire (7)	Connected to temp. sensor
Temp. sensor	x 3, mounted in immersion pipes

#### 3.8.2 Access to junction box

Disconnect the power supply and ensure that it cannot be switched on again while work is ongoing. The lower cover (1) of the control unit covers the junction box. Loosen the fastening screws (2) and lift the cover to remove.

The cover must always be installed correctly before the power is turned on.

# Ø DO NOT

The upper cover (3) of the control unit must NOT be opened. The warranty will be void if the upper cover of the unit is opened.



#### 3.8.3 Temp. sensor replacement

The temp. sensor is factory-fitted and pre-connected to the control unit. If the temp. sensor needs to be replaced:

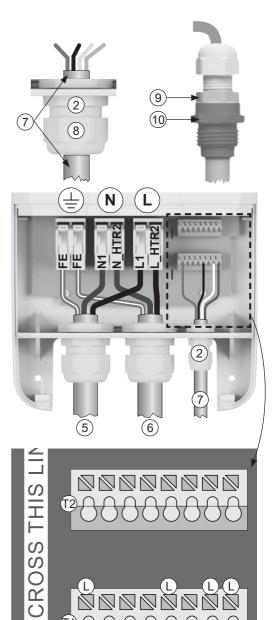
- A. Disconnect the power supply to the product and shut off the cold water supply to the heater.
- B. Remove the lower cover (1) of the control unit
- C. Loosen wires R, B, W and G by depressing the locking tabs (L).
- D. Unscrew the lower nut (8) on the control unit strain reliever (2). Pull the wire for the old temp. sensor out from the junction box. Thread nuts (8) onto the new temp. sensor wire.
- E. Loosen the grey plastic nuts (9) and unscrew the temp. sensor strain reliever. Do NOT loosen the brass nuts (10).
- F. Pull the defective sensor wire out from the temp. sensor pipe. Dispose of the wire as electrical waste.
- G. Insert the new sensor wire into the temp. sensor pipe. Make sure that the sensor wire is inserted all the way to the bottom of the pipe. Tighten the nuts (9).
- H. The wire from the new temp. sensor (7) must be inserted into the control unit strain reliever (2). Check that the nuts (8) have been mounted on the wire. Make sure that the outer jacket of the wire protrudes a few millimetres through the strain reliever and into the junction box, as illustrated.
- I. Manually tighten the strain reliever nuts (8).
- J. Connect the Red (R), Black (B), White (W) and Green (G) sensor wires in accordance with the circuit diagram. Wires must be connected in the lower terminal (T1) by depressing the locking tabs (L) and inserting the bare end of the sensor wire into the terminal connection. The wire will be secured when the locking tab is released.

Terminal T2 is intended for use when connecting any optional equipment.

The control unit is supplied with supply cables for the power grid (5) and heater (6). These must be connected as shown in the illustration and in accordance with the instructions on the next page.

3.8.4 Torque

Component	Torque
G 1/2" M temp. sensor	20 Nm (+/- 3)



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#### 3.8.4 Electrical connection - water heater

The control unit is supplied with a factory-fitted mains cable for the heater. The mains cable for the water heater must be connected as follows:

- A. The 2.5 mm<sup>2</sup> mains cable for the heater from the control unit must be connected to the safety thermostat and element as illustrated:
  i) The brown wire L (1) must be connected to point '1' on the safety thermostat.
  ii) The blue wire N (3) must be connected to point '3' on the safety thermostat.
  iii) The yellow/green earth wire (2) must be connected to the earth point (4) on the element.
- B. All connection points must be tightened using torque in accordance with table 3.8.6.
- C. The mains cable for the control unit and heater has been pre-connected to the control unit junction box in accordance with the circuit diagram on page 13.

#### 3.8.5 Electrical connection - Control unit

The control unit is supplied with a mains cable and plug for a wall socket as standard. Fixed electrical fittings must be used for installations in domestic properties in accordance with NEK 400:2010 or later, as well as in the event of any changes to the property's existing electrical installations in accordance with the regulations. The supplied mains cable with plug for a wall socket can be used when installing the product without requiring any alteration of the home's electrical installations as installed in accordance with NEK 400:2006 or earlier. Any fixed electric fittings must be installed by an authorised electrician.

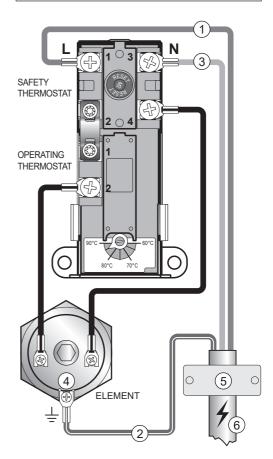
The relevant regulations and standards, as well as this installation manual, must be followed.

#### 3.8.6 Torque

Component	Torque
Thermostat screws	2 Nm (+/- 0.1)
Screw on the element head	2 Nm (+/- 0.1)

## ▲ WARNING

Constant voltage present in the junction box. Before any electrical work is done, the power supply must be disconnected and secured against activation while the work is in progress. In the event of a permanently connected heater, the qualification requirements for electrical work (FEK) must be followed.



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The water heater must be filled with water before the power is switched on, otherwise the warranty will be void.

Check that the mixing valve on the water heater has been configured correctly, see page 16.

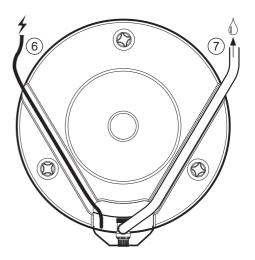
# 3.8.7 Fitting instructions

	∆ WARNING		
0	Any external control of the power supply to the product must be approved by OSO.		
0	The water heater shall be filled with water before the power is switched on.		
0	Fixed electrical fittings must be used for installations in domestic properties in accordance with NEK 400:2010 <i>or later,</i> as well as in the event of any changes to the existing electrical installations in accordance with the regulations. The supplied mains cable with plug for a wall socket can be used when installing the product <i>without</i> requiring any alteration of the electrical installations as installed in accordance with NEK 400:2006 <i>or earlier</i> .		
0	The factory-fitted mains cable is certified up to 90°C (H05V2V2-F) and can also be used for permanent installation, a strain reliever (5) must be installed in the event of replacement.		

	▲ CAUTION
0	The water heater must be installed with a clearance for servicing of 40 cm in front of the electrical junction box cover / 10 cm above the highest point.
	In case of damage to the mains cable, it shall be replaced with a specially adapted mains cable from the manufacturer.

# 3.8.8 Fitting recommendation

	RECOMMENDATION		
-	The mains supply cable from the Charge unit (6) should be concealed in one of the channels at the bottom of the product.		
-	Any overflow pipe (7) from the safety valve can be concealed in one of the channels at the bottom of the product.		
-	For products with $\leq$ 3kW capacity, a $\geq$ 15A fuse / $\geq$ 2.5# wire should be used.		



# 4. INITIAL COMMISSIONING

# 🛆 WARNING

The heater must be filled with water before the power is switched on.

## 4.1 Filling with water

First check that all pipes are connected correctly. Then proceed as follows:

- A) Open a hot tap leave it open
- B) Turn the adjustable knob on the mixer valve all the way to '+'.
- C) Open the cold water supply to the product.

Check that the water from the open hot water tap is flowing freely, without any air locks.

A) Close the hot tap.

## 4.2 Turning on the power

When the cylinder has been filled with water, the power can be switched on.

Follow the start-up instructions for Charge smart management, see Sections 4.5 - 4.7.

#### 4.3 Setting the mixer valve

The outgoing hot water temperature from the product to the taps in the home can be adjusted with the knob on the thermostatic UXT mixer valve. Adjusting the mixer valve does not affect the temperature of the hot water in the product. To adjust the tap temperature:

A) Turn the adjustable knob (1) all the way to '-' (minus)

B) Then turn the knob towards '+' to the desired temperature in accordance with the table.

Turns	Temperature	
2	Approx. 50°C	
2 1/2	Approx. 55°C	
2 3⁄4	Approx. 60°C	
3	Approx. 65°C	

#### 4.4 Checkpoints, heater

- A) Check that all pipe connections to/from the product are tight and not leaking.
- B) Check that the power supply to the product is not at risk of being exposed to mechanical, thermal or chemical impact, including from any unauthorised power management system.
- C) Check that any overflow pipe from the safety valve is clear, undamaged and frost-free with a fall to the drain.
- D) Check that the product is in a stable position both vertically and horizontally.

# 🛆 WARNING

The control unit must not be covered in any way.

## 4.5 Preparations before start-up

After installation, the power supply to the water heater will be controlled by the OSO Charge control unit. The control unit is operated using the button at the front (6) and a mobile application. We recommend downloading the app before the system is prepared for operation, see Section 4.8.

#### 4.6 Checkpoints before start-up

- 1. Check that the temp. sensor connection is secure.
- 2. Check that wires are not exposed to mechanical, thermal or chemical impact.
- 3. Check that the control unit is secured to the wall and easily accessible.

#### 4.7 Turning on the control unit

Turn the control unit on with a quick push on the button (6). When the control unit is on, the button will be illuminated in green.

Google Play Store >



Apple AppStore >



## 4.8 Installing the OSO inCharge app

OSO inCharge is a mobile application that provides insight into consumption patterns and optimisation possibilities for the water heater. You can download and install the OSO inCharge app from the Apple AppStore or Google Play Store. You can also scan the QR codes displayed.

Login: At initial start-up, the user needs to create an account with a username and password (unless they already have an account).

*Registration:* The control unit must be registered after logging in. The user can scan the QR code on the control unit or enter the unit ID from the rating plate on the control unit. After registration, the user must provide information about the water heater by following the instructions presented in the app.

## 4.9 WiFi connection

- 1. Launch the OSO inCharge app. Create account.
- Scan the unique QR code on the control unit. This can be found either on the side of the product (7) or on the inside of the junction box cover (8).
- Press down the control unit button (6) for at least one second to start connecting to the home WiFi.

The green light on the button will flash rapidly and the unit will now be in configuration mode. Follow the instructions in the app to complete the connection.

When the configuration has been completed, the control unit will automatically return to normal operating mode. This is indicated by a continuous green light in the button (6).

If you do not update the configuration from the app after placing the control unit in configuration mode, the unit will automatically return to normal operating mode after three minutes.

## 4.10 Handover to end-user

THE INSTALLER MUST:	
Brief the end-user on safety and mainte- nance instructions.	
Brief the end-user on the use of the product.	
Brief the end-user on settings and emptying of the heater.	
Enter their contact details on page 27.	
Hand this manual over to the end-user.	



# 5. USER GUIDE

## 5.1 Settings, water heater

### 5.1.1 Thermostat setting

The product thermostat has been preconfigured to 85°C and *should not* be adjusted. The power supply for the product is managed via the Charge unit. Fit the cover before connecting the power supply.

#### 5.1.2 Resetting the safety thermostat

The safety thermostat on the product cuts out when there is a risk of overheating. This is reset by removing the cover (1) and pressing the red 'RESET' button (2). If the thermostat cuts out repeatedly, contact the installer.

#### 5.1.3 Setting the mixer valve

The outgoing hot water temperature from the water heater to the taps in the home can be adjusted with the knob on the UXT mixer valve. To adjust the temperature:

A) Turn the adjustable knob (3) all the way to '-' (minus)

B) Then turn the knob towards '+' to the desired temperature:

Turns	Temperature	
2	Approx. 50°C	
2 1/2	Approx. 55°C	
2 3⁄4	Approx. 60°C	
3	Approx. 65°C	

#### 5.1.4 Adjusting the feet

The product is equipped with three factory-fitted feet (4), adjustable from 0-40 mm. Screw the feet out a minimum of 15 mm from the bottom of the product. Adjust the feet individually until the product is in a stable position both vertically and horizontally.

#### 5.1.5 Annual inspections

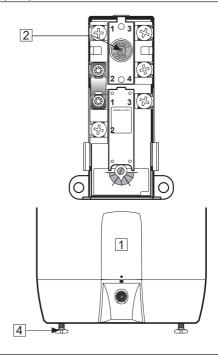
Annual inspections must be performed only by

## 5.2 Maintenance

persons over 18 years of age with sufficient expertise. Inspect the heater in accordance with Section 4.4.Inspect valves in accordance with Section 5.2.

## 

Constant voltage present in the junction box. Before any electrical work is done, the power supply must be disconnected and secured against activation while the work is in progress. In the event of a permanently connected heater, the qualification requirements for electrical work (FEK) must be followed.



	MAINTENANCE INSTRUCTIONS	
0	Maintenance should be carried out by persons over 18 years of age, with sufficient understanding.	
0	Annual inspection of safety valve:	
-	Open valve for 1 minute by turning the knob (5) approx. 90 degrees to the open position.	
-	Visually check that the water is flowing freely to the drain.	
-	YES = OK. Close the valve by turning the knob (5) a further 90 degrees to the closed position.	EN1489
-	NO = NOT OK. Disconnect power supply / shut off water supply. Contact installer.	
0	UXT mixer valve - re-tighten secondary seal if needed:	
-	In the event of water droplets at the knob on the UX mixer valve, tighten the nuts (6).	

#### 5.3 Settings, control unit

The control unit is managed by the OSO in-Charge app. Download the app and follow the instructions. See Sections 4.8 and 4.9.

## 5.4 Maintenance and annual inspections

The control unit must be subjected to annual inspections in the same way as other electrical equipment. Check that the control unit is not covered in any way and that cables are not at risk of being exposed to mechanical, thermal or chemical impact.

Water heaters and pipe fittings must be inspected annually, see Sections 5.1.5 and 5.2.

Maintenance must only be carried out by persons over 18 years of age with sufficient expertise.

## 5.5 Troubleshooting

If problems arise when the control unit is in use, check for possible faults and fixes in the table below.

If the problem does not appear in the table or you are unsure what is wrong, contact the installer (see contact details on page 27) or OSO Hot-water AS - see contact details on the back of this manual.



CONTROL UNIT STATUS				
Status, LED in button (7)	Cause	Solution		
Continuous light	Normal operating mode	The unit is in normal operating mode, no faults.		
Continuous flashing 	Disconnected from WiFi/cloud connection	Check the local WiFi network and password settings. Check the connection to the external internet provider.		
Continuous light interrupted by         2-3 short flashes         2 s.       0.1 s.         2 s.	The unit is connected to the WiFi/cloud connection, but is experiencing a software or hardware error	Restart the unit by turning the power supply off and on again. If necessary, the device can be reconfigured, see Section 4.4. In case of persistent error, please contact the installer or OSO Energy AS.		
No light, only 2-3 short flashes 2 s. 0.1 s. 2 s.	The device is not connected to the WiFi/cloud connection and is experiencing a software or hardware error	Check the local WiFi network and password settings. Check the connection to the external internet provider.		
Continuous rapid flashing 0.2 s. / 0.2 s.	The unit is in configuration mode (started by pressing the button (7) for at least one sec- ond)	The control unit can receive configuration settings from the OSO inCharge app. Configuration mode will auto- matically turn off after three minutes or immediately af- ter the configuration from the app has been completed (must be completed within three minutes).		
No light	Power supply fault	Check the fuse/service switch		
No light	Hardware error	Change the control unit/contact installer		

#### 5.6 Status table, control unit

### 5.7 Emptying of water

## A WARNING

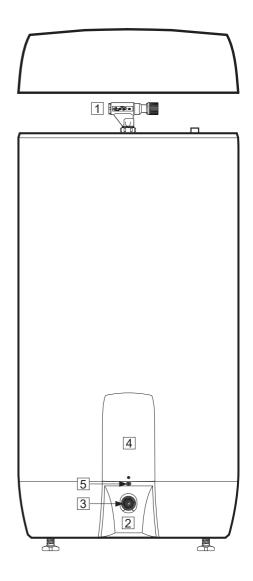
The water temperature in the water heater is 75°C and could cause scalding. Before emptying, a hot tap should be opened to the max. pressure/temperature for min. 3 minutes.

- A) Disconnect the power supply to the Charge control unit.
- B) Shut off incoming cold water supply.
- C) Fully open a hot tap – leave open (prevents vacuum).
- D) Open the mixer valve all the way to '+', see Section 5.1.3.
- E) Remove the cover from the safety valve (2) by loosening the screw (5).
- F) Turn the knob on the safety valve (3) approx.90 degrees to the open position.The product will empty.

After emptying, close the safety valve by turning the knob (3) further clockwise. Close all open taps. Adjust the mixer valve to its original setting. Fit the cover (2) in front of the safety valve.

If the tank needs to be emptied faster, the safety valve can be removed by unscrewing the clamping ring connector to the overflow connection.

When re-fitting, the ring clamp connection to the water heater should be tightened to 60 Nm torque (+/-5).



# 5.8 Spare parts

OSO product no.	Designation	Product description:	Dimension
11000901	Thr. 5/4"	Element - 3 kW/1x230V - 1-tube - Inc 825 - for 300 I.	Length 450 mm.
11001075	TS2	Thermostat - 59T/66T 60-90°C 1-phase	2-pole
11001124	Mains cable	Cable with 1 x plug 2.5# - 2+earth	Length 3 m.
11001141	Connecting cable	Internal cable - 2.5# ,180°C / Saga, fork+fork	Length 205 mm
11001304	UXT	Thermostatic mixer valve - grey knob (1)	ø22 mm conn.
11001362	SVS	Safety valve - SV-385 (SVS), 9 bar, with nut (3)	ø22 mm ring clamp
11008768	Temp. sensor	CHARGE Temp. sensor/200L – G1/2M (7)	G 1/2" M - L = 832
11008760	Temp. sensor	CHARGE Temp. sensor/300L – G1/2M (7)	G 1/2" M - L = 1282
11008779	Control unit	CHARGE R2.2 - 16A/1x230,EU, WiFi, RAL 9016 white (6)	165x315x60



# 6. TROUBLESHOOTING, HEATER

## 6.1 Faults and fixes

If problems arise when the product is in use, check for possible faults and fixes in the table. If the problem does not appear in the troubleshooting table or you are unsure what is wrong, contact the installer (see page 27) or OSO Hotwater AS - see Section 8.1.

TROUBLESHOOTING				
Problem	Possible cause of fault	Possible solution		
There is leakage/dripping from the safety valve/there is often water on the floor by the cylinder in the morning	Pressure reduction valve, water meter or blocked non-return valve on the water intake. Water pressure into the home is too high.	Fit AX expansion vessel with absorbs expansion during heating, and fit pressure reduction valve for stable water pressure inside the home. The pressure reduction valve is adjusted in according to the pres- sure in the expansion vessel. Contact auth. installer.		
	The safety valve is worn or there are par- ticles stuck between the membrane and the valve seat because the water is dirty	Try to flush with water through the safety valve. Open valve for approx. 1 minute. See section 5.2. If the valve still leaks, it must be replaced. Contact auth. installer.		
	Leak from heating element.	Verify as follows: a) cut the electric supply, b) un- screw the cover, c) visually check whether there is a leak from the heating element. If so, replace the gasket/heating element. Contact auth. installer.		
The mixer valve knob is dripping	The secondary seal must be re-tightened	Tighten the nut on the secondary seal, see Section 5.2		
No hot water	Power supply interrupted.	Verify that the fuse is on / the plug is plugged in to the wall contact / the earth breaker has not tripped.		
	Thermostat has cut out.	Press the 'RESET' button on the safety thermostat; see 'User guide'.		
	Heating element is defective.	Replace heating element. Contact auth. installer.		
	Leak in hot water pipe	Verify as follows: a) close the mixer valve, b) wait 2-3 hours, c) feel the mixer valve to see whether it is hot. If so, there is a leak in the hot water pipe or elsewhere. Contact auth. installer.		
Not enough hot water	High consumption in the home.	Switch to a larger OSO water heater. Contact auth. installer.		
Not high enough temperature	The mixer valve is set for low tempera- tures.	Raise the temperature on the mixer valve; see 'User guide'.		
	Change from cold to hot water in taps.	Contact auth. installer.		
Fuse/earth breaker trips repeatedly	Possible fault in the heater's electrical system.	Verify as follows: a) cut the electric supply, b) un- screw the cover, c) visually check the junction box for any problems. If so, contact auth. installer to check. Fit the cover.		
Long time before the water reaches the tap	Long stretch of pipe from water heater to tap.	Fit circulation wire or heating cable to HW pipe. Or fit an auxiliary heater by the tap. Contact auth. installer.		
Knocking in the pipes when the hot tap is closed	Large pressure increase when the tap is closed quickly.	Completely normal. Fit AX expansion vessel if troublesome. Contact auth. installer.		

For troubleshooting for the Charge smartcontrol, see Section 5.5.

# 7. TERMS OF USE, CHARGE UNIT

The service, an optimisation application for hot water tanks, ("the Service"), is provided by OSO Energy AS, business registration no. 925 156 663, In-dustriveien 1, NO-3300 Hokksund ("OSO").

The terms of use ("the Terms") apply to the natural person ("you") using the Service.

#### ABOUT THE SERVICE

The Service is an optimisation service for OSO hot water tanks with associated control units (<sup>4</sup>the Product") and is used to optimise water heating in relation to cost and other considerations. The Service can be downloaded as a mobile phone application (app). Further information about OSO and its products and services can be found at https://osoenergy.no/

#### THE AGREEMENT

The agreement between yourself and OSO comprises these Terms and the OSO Privacy Policy. The agreement applies solely to your use of the Service. Terms and conditions of purchase and use of the Products follow from vour agreement with the seller of the Product.

#### USE OF THE SERVICE

You must be 18 years of age or older to access the Service. In order to use the Service, the customer must identify themselves in accordance with the applicable authentication requirements in the application. This could be SMS, e-mail or other supported solutions.

The Service is an optimisation service for the Product and should be used to attempt to optimise the water and power consumption of the product. The app provides insight into the available volume of hot water, historical consumption data and general information about the water heater. The app supports multiple water heaters and allows the customer to manage these using a single interface. The Service includes functionality to optimise the heating of water in relation to cost, as well as maintaining quality in terms of of e.g. frequency, hot water availability and voltage. You will have access to certain configuration options for optimisation. The app supports notifications. Optimal use and benefit of the Service is subject to the Product having been mounted, installed and positioned in the manner and environment specified in the instructions for use of the Product. Moreover, the Product control unit must not have been opened or otherwise damaged or impacted.

The Service must be used in accordance with any instructions provided by OSO. The Service must not be used for purposes that contravene the Terms or legislation or for anything other than the intended Products. You are re-sponsible for all actions and activities associated with your use of the Service and neither OSO nor its subcontractors are liable for any unauthorised ac-

Service resulting from regiligence on your part. You may not copy, reproduce, sell, license, distribute, modify, decompile or otherwise modify the Service or make the Service or parts thereof available to others

Please refer to the current user manual available at www.osoenergy.no/ brukermanual for an exhaustive description of the service and its features.

#### ACCESSIBILITY

If you experience any difficulties using the Service, please contact OSO via email: into@osoenergy.no or phone: 47 32 25 00 00. OSO will respond as soon as possible and usually within one working day.

OSO may implement appropriate measures that may affect access to the Service for technical, maintenance or safety reasons. To the extent that it is practicable, OSO will provide information about any unavailability of/limita-tions to Services. Such information will be issued via the communication channels to which OSO has access, e.g. via the application or OSO website, and in the manner and to the extent deemed appropriate by OSO.

#### LIMITED ACCESS TO THE SERVICE

The Service may be interrupted due to circumstances outside of the control of OSO or its subcontractors if such circumstances may affect the functionality and availability of the Service. Neither OSO nor its subcontractors can control such circumstances and OSO can therefore not guarantee continuous or uninterrupted access to the Service. Nevertheless, OSO will seek, to a reasonable extent, to eliminate any factors that interrupt or risk interrupting the functionality and availability of the Service.

OSO reserves the right to terminate your access to the Service at any time if OSO suspects that you are violating the Terms or otherwise acting in a manner that means that OSO or its subcontractors, other users or persons are at risk of loss or damage. You are financially liable to OSO to the extent that follows from general tort law.

#### UPGRADED FEATURES AND NEW VERSIONS OF THE SERVICE

Upgraded features and new versions of the Service will be implemented in the Service to the extent deemed necessary by OSO. OSO reserves the right to modify or adjust the Service or the way in which the Service is delivered without prior warning and at any time.

The Service shall remain available for at least five years after installation. The Products to which the Service is linked may have a longer service life than the period for which the Service is delivered. The Products will also work for their intended purpose without the Service.

#### PERSONAL DATA

The following data will be processed by OSO in order for OSO to deliver the Service:

A. Information about the serial number of your Product

B. Information or data about you as collected from the control unit linked to

the Product, including location (map coordinates - for installation), meter point ID, temperature, hot water volume and electricity readings for the Product

- C. Information or data you choose to enter in the Service: and
- D. Information or data created in the Service, as statistics.

OSO may share information about you related to your use of the Service with other parties in order to improve the Service/Product and contribute to A more efficient utilisation of the power grid. A more comprehensive and detailed description of the collection and pro-

cessing of your personal data can be found in the Privacy Policy at https:// osoenergy.no/personvern/

#### LINKS TO OTHER WEBSITES

LINKS 10 OTHER WEBSITES You may encounter links to websites provided by third parties in the Service. OSO has no control over or responsibility for such affiliated websites or the contents thereof and shall not be held liable for any damage arising in con-nection with the use of services available on linked websites. You should read the respective terms of use and privacy policies for such third party websites

#### INTELLECTUAL PROPERTY RIGHTS

All rights to the Service and Product, including intellectual property rights, are owned by OSO and OSO's subcontractors. Such rights include, but are not limited to, the operation, method, software and design of the Service. You shall not acquire any intellectual property rights to the Service or any rights to the material generated in connection with your use of the Service.

#### THIRD-PARTY APPLICATIONS

You may require access to certain third-party applications in order to use parts of the Service. You are responsible for installing and updating such third-party applications.

You must use third-party applications in accordance with the terms of the application. You must indemnify OSO and its subcontractors in the event of any claims against OSO or its subcontractors arising as a result of your use of third-party applications. Neither OSO nor its subcontractors are liable for defects in. and cannot guar-

antee the functionality of, any third-party application.

#### LIABILITY AND LIMITATION OF LIABILITY

Neither OSO nor its subcontractors shall be liable for loss of earnings, repayments to third parties or other indirect or consequential losses. This limitation shall not apply in the event of gross negligence or wilful intent.

#### FORCE MAJEURE

OSO and its subcontractors shall not be liable for non-fulfilment of the obliga-tions under the Terms, during the period in which and to the extent that OSO or its subcontractors are hindered by circumstances outside our control, including war, warlike conditions, labour disputes, epidemics, pandemics, new or amended legislation, government measures, interruptions or faults in electron to compression subcontractors. electricity or communication systems, fire, flooding or other factors of similar significance.

MODIFICATION AND TERMINATION OF THE SERVICE OSO reserves the right to modify or supplement these Terms at any time. You will be notified of any significant modifications.

All modified terms will automatically take effect no later than fourteen (14) days after the modifications have been published in the Service. By continu-ing to use the Service after fourteen (14) days, you will be deemed to have accepted the new Terms.

You may stop using the Service at any time. Please note that uninstalling the Service from your mobile or stopping using the Service will not automatically result in the closure of your account in the Service. You need to actively close your account in the app.

#### COMMUNICATION

You accept that all communication from OSO or its subcontractors may be submitted electronically, either via the Service or to your email address.

#### DURATION

The Terms apply from the date on which you register a user account for the use of the Service and until you have closed your account in the app or the Service is discontinued by OSO.

#### CHOICE OF LAW AND LEGAL VENUE

The Terms shall be interpreted in accordance with and as supplemented by Norwegian law. Attempts shall be made to resolve any dispute arising as a result of or in connection with these Terms or in connection with breach, a result of of invalidity of the Terms through negotiations. If non-intector with bleach, termination or invalidity of the Terms through negotiations. If negotiations are not successful, you, as the consumer, may contact the Norwegian Con-sumer Authority to request arbitration, cf. Complaining to the Norwegian Consumer Authority - Norwegian Consumer Authority.

If the parties agree, or if you a business, the case can be brought directly before the ordinary courts.

If you are consumer residing in another EU country, you may lodge a com-plaint via the European Commission's complaints portal: http://ec.europa. eu/odr

Last updated: 16/03/2022. See www.osoenergy.no for the latest version.

# 8. WARRANTY CONDITIONS

#### 1. Scope - Saga S water heater

OSO Hotwater AS ("OSO") warrants for 5 years from the date of purchase that the Product will: i) conform to OSO specifications, ii) be free from defects in materials and workmanship, subject to the conditions below. All components are guaranteed to be free from defects in materials and workmanship for 2 years.

The guarantee is voluntarily extended by OSO to 10 years for the stainless steel pressure tank. This extended warranty only applies to Products purchased by a consumer, installed for private use and distributed by OSO or by a distributor where the Product was originally purchased from OSO and installed by a qualified plumber.

The warranty on products purchased by commercial entities or installed for commercial use is governed solely by the Norwegian Sale of Goods Act and the following warranty conditions and limitations.

#### 2. Coverage

If a defect arises and a valid claim is received within the statutory warranty period, at its option and to the extent permitted by law, OSO will either; i) repair the defect, or; ii) replace the product with a product that is identical or similar in function, or: iii) refund the purchase price.

If a defect arises and a valid claim is received after the statutory warranty period has expired, but within the extended warranty period, OSO will supply a product that is identical or similar in function. In such cases, OSO will not cover any other costs associated with the replacement.

Products or components replaced in connection with warranty claims become the property of OSO. The product or component being replaced will not result in an extension of the original warranty period.

#### 3. Assumptions

The product is adapted to the water quality from most public water works. However, certain water qualities (see below) may have very negative effects (resulting in corrosion) on the expected service life of the product. If there are uncertainties regarding water quality, the local water supply authority can supply the necessary data.

This warranty applies only if the following conditions are met:

- The product has been installed according to the installation instructions supplied and in compliance with all relevant regulations, standards and requirements in effect at the date of installation.
- The product has not been modified, changed, subjected to abnormal effects, and no factory-fitted or supplied parts have been removed.
- The product has been connected to the public electricity arid and no external power control unit has been used for the product or product circuit unless authorised by OSO.
- The product has only been connected to public water works, has been in regular use, and the water guality is as follows:  $< 75 \text{ ma} / \text{L}^{*}$ 
  - Chlorides
  - Conductivity (EC) at 25°C < 230 uS / cm\*
  - \*In the event of higher values, the anode should be fitted before filling the product with water.
- The heating element has not been exposed to water of a hardness exceeding 5°DH (90 mg/L CaCO3).
- Any form of disinfection of the piping has been carried out without affecting the product. The product must be isolated from any kind of chemical disinfection.

- The product has been in regular use since the . installation date. If the Product is not to be used for 60 days or more, it must be drained down.
- Service and maintenance have been carried out by an expert according to the requirements in the accompanying installation instructions and all relevant technical regulations. Any component used for servicing is an original OSO spare part.
- Any warranty cost has been approved in writing by OSO before it is charged.
- A purchase receipt and/or receipt for the installation, a water sample and the defective product will be provided to OSO on request.

If the above conditions are not met, this may result in damage to the Product and subsequent water leakage.

#### 4. Limitations

The warranty does not cover:

- Any fault or costs arising from incorrect installation or use, lack of maintenance, negligence, misuse, alteration or repair carried out incorrectly or any fault caused by changing the product from its original form.
- Any consequential damage or any indirect loss caused by any failure or malfunction of the Product.
- Any damage caused by frost, over-pressure, overvoltage, unauthorised external power control or chlorine treatment
- The effects of stagnant water if the Product has been left unused for more than 60 days consecutively.
- Any pipework or equipment connected to the Product.
- Transport damage. The carrier should be notified of any such damage upon receipt.
- Costs due to the fact that the product is not easily accessible for service.

This warranty does not limit the Purchaser's statutory rights in any way.

#### 5. Scope - Charge control unit

OSO Energy AS ("OSO") warrants for 2 years from the date of purchase that the Product will: i) conform to OSO specifications, ii) be free from defects in materials and workmanship, subject to the conditions below. All components are guaranteed to be free from defects in materials and workmanship for 2 years.

The warranty on products purchased by legal persons or installed for commercial use is governed solely by the Norwegian Sale of Goods Act and the following warranty conditions and limitations.

#### 6. Coverage

If a defect occurs and a valid claim is received within the statutory warranty period, OSO shall, at its own choice and within the framework of the law, either;

i) repair the defect, or;

ii) replace the defective product with a new product that is identical or equivalent in terms of features, or; iii) refund the purchase price for the product.

Products or components replaced in connection with warranty claims become the property of OSO. The product or component being replaced will not result in an extension of the original warranty period.

#### 7. Assumptions

This warranty applies only if the following conditions are met:

- The product has been installed according to the installation instructions supplied and in compliance with all relevant regulations, standards and requirements in effect at the date of installation.
- The product has not been modified, changed, subjected to abnormal effects, and no factory-fitted or supplied parts have been removed.
- Service and maintenance have been carried out by an expert according to the requirements in the accompanying installation instructions and all relevant technical regulations. Any component used for servicing is an original OSO spare part.
- Any warranty cost has been approved in writing by OSO before it is charged.
- A purchase receipt and/or receipt for the installation and the defective product will be provided to OSO on request.

If the above conditions are not met, this may result in damage to the product.

#### 8. Limitations

The warranty does not cover:

- Any fault or costs arising from incorrect installation or use, lack of maintenance, negligence, misuse, alteration or repair carried out incorrectly or any fault caused by changing the product from its original form.
- Any consequential damage or any indirect loss caused by any failure or malfunction of the product.
- Equipment connected to the product.
- Transport damage. The carrier should be notified of any such damage upon receipt.
- Costs due to the fact that the product is not easily accessible for service.

#### 8.1 Customer service

In case of problems that cannot be resolved with the aid of the troubleshooting guide in this installation manual (Section 6.1), contact either:

- A) The installer who supplied the product.
- B) OSO Hotwater AS: Tel.: +47 32 25 00 00 oso@oso.no / www.oso.no

# 9. REMOVING THE PRODUCT

## 9.1 Removal

- 1. Disconnect the power supply, disconnect all cables and wires.
- 2. Shut off incoming cold water supply.
- 3. Empty water heater see Section 5.7.
- 4. Disconnect all pipes.
- 5. Control unit: Loosen the suspension screws in the wall.
- 6. The product can now be removed.

#### 9.2 Returns scheme

This product is recyclable and should be taken to the environmental recycling centre. The Charge control unit must be disposed of as electrical waste.

If the product is to be replaced with a new product, the installer can take the old product away for recycling.



# 9. INSTALLER

# 9.1 Contact details

To be completed by installer:

CONTACT DETAILS				
Installed by (company):				
(company).				
Company address:				
Company phone:				
Company email:				
Installation date:				

# Notes:



#### **OSO Hotwater AS**

Industriveien 1 3300 Hokksund - Norway Tel.: +47 32 25 00 00 oso@oso.no www.osohotwater.com

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