

# Accu Standard - AS

100 l.

EN



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

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**OSO**  
HOTWATER

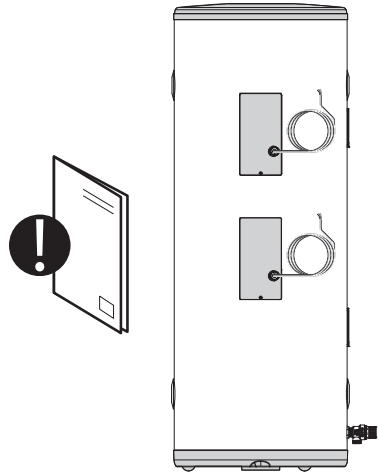
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# 1. SAFETY INSTRUCTIONS

## 1.1 General information

- Read the following safety instructions carefully before installing, maintaining or adjusting the buffer tank.
- 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 at the date of installation.











Symbols used in this manual:

	WARNING	Could cause serious injury or death
	CAUTION	Could cause minor or moderate injury or damage to property
	DO NOT	
	DO	





	This document should be kept in a suitable place where it is accessible for future reference.
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## 1.2 Safety instructions for users

 WARNING	
	The safety valve overflow must NOT be sealed or plugged.
	The product must NOT be modified or changed from its original state.
	Children must NOT play with the product or go near it without supervision.
	Maintenance/settings should only be carried out by persons over 18 years of age, with sufficient understanding

 CAUTION	
	The product must not be exposed to frost, over-pressure, over-voltage or chlorine treatment. See warranty provisions.
	Maintenance/settings should not be carried out by persons of diminished physical or mental capacity, unless they have been instructed in the correct use by someone responsible for their safety.

## 1.3 Safety instructions for installers

 WARNING	
	The product is supplied with a safety valve. The safety valve overflow must NOT be sealed or plugged.
	Any overflow pipe from the safety valve MUST be $\geq 18$ mm inside, fitted uninterruptable and frost-free with a fall to the drain.
	The relevant regulations and standards, and this installation manual, must be followed.

 CAUTION	
	The product should be placed in a room with a drain, in accordance with local laws and regulations. Alternatively, fit an automatic stop valve with sensor and overflow from safety valve to drain. Liability for consequential damage will only apply if this is followed.
	The product should be properly aligned vertically and horizontally, on a floor or wall suitable for the total weight of the product when in operation. See type plate.
	The product must have a clearance for servicing of 40 cm in front of the junction box / 10 cm over the top connection.

## 2. PRODUCT DESCRIPTION

### 2.1 Product identification

Identification details for your product can be found on the type plate fixed to the product. The type plate contains details of the product in accordance with EN 12897:2016 as well as other useful data. See Declaration of Conformity at [www.osohotwater.com](http://www.osohotwater.com) for more information.

OSO products are designed and manufactured in accordance with:

- Pressure vessel standard EN 12897:2016
- Welding standard EN ISO 3834-2

OSO Hotwater AS is certified for

- Quality ISO 9001
- Environment ISO 14001
- Work environment ISO 45001

### 2.2 Intended use

The Accu Standard is designed for use as a buffer for heating systems at electrical peak load, and is designed for use in a closed circuit system.

### 2.3 CE marking



The CE mark shows that the product complies with the relevant Directives. See Declaration of Conformity at [www.osohotwater.com](http://www.osohotwater.com) for more information.

The product complies with Directives for:

- Low voltage LVD 2014/35/EU
- Electromagnetic compatibility EMC 2014/30/EU
- Pressurised equipment PED 2014/68/EU

The safety valve(s) used must be CE marked and conform to PED 2014/68/EU.

### 2.4 Technical data

NRF no.	Product code:	Capacity persons	Weight kg.	Dimensions Diameter x H mm.	Freight vol. m <sup>3</sup>	Heating time hours $\Delta t$ 65°C	Actual vol. l.
8000486	AS 100 - 5,6 kW (2,8+2,8) / 1x230V	-	30	ø430x1168	0,3	-	100

This product is categorised as IP21.

### 2.5 ErP data - Technical Data Sheet

Brand	Model-no.	Model name	ErP profile	ErP Rating	AEC - kWh/a	Thermostat setting °C	Heat loss W	Actual volume L
OSO Hotwater AS	8000486	AS 100	-	C	-	-	57	100
Regulation: 2017/1369/EU - Regulation: EU 812/2013			Directive: 2009/125/EC - Regulation: EU 814/2013					
Heat loss tested acc. to standard: EN 12897: 2015								

### 2.6 Spare parts

NRF no.	Description	Product information	Dimensions
8015042	RGK 1"	Element - 2,8 kW/1x230V - 2 heating tubes - Inc 825	Length 320 mm.
11008284	TS2	Thermostat - 30-60°C - 59T/66T 1-phase	
8405007	SV-381	Safety valve - 3 bar	ø15 mm / 1/2" R
121214	CST	Air vent valve, automatic - Caleffi composite	1/2"

### 3. INSTALLATION INSTRUCTIONS

#### 3.1 Products covered by these instructions

8000486 Accu Standard - AS 100

#### 3.2 Included in delivery

Ref no.	Pcs.	Description
1	1	Buffer tank with electric peak load
2	2	Electric junction box
3	1	Installation manual (this document)
4	1	SV381 / 3 bar safety valve (supplied)
5	1	Wall bracket (supplied)
6	1	Automatic air vent valve (supplied)
7	2	1" brass plug with o-ring seal (supplied)

#### 3.3 Product dimensions

All dimensions in mm.

Product.	A*	B*	C	D	E	∅
AS 100	1236	1168	962	192	96	430

Tolerance +/- 5 mm.

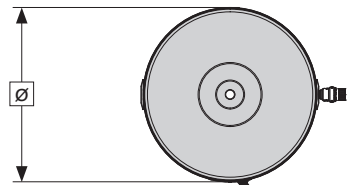
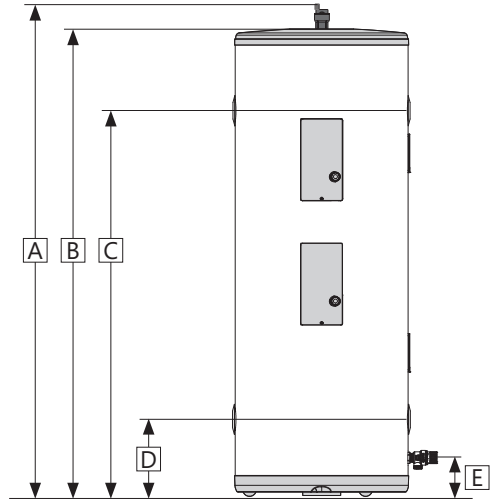
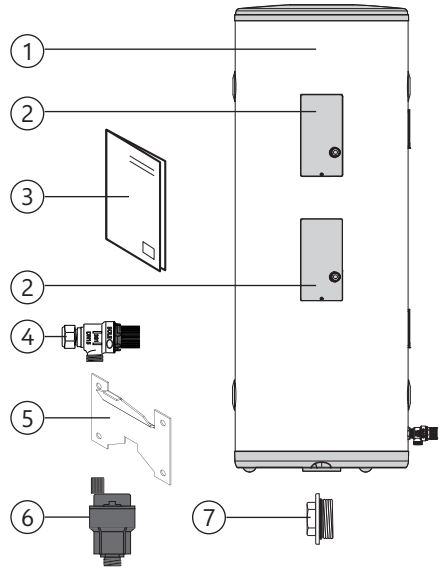
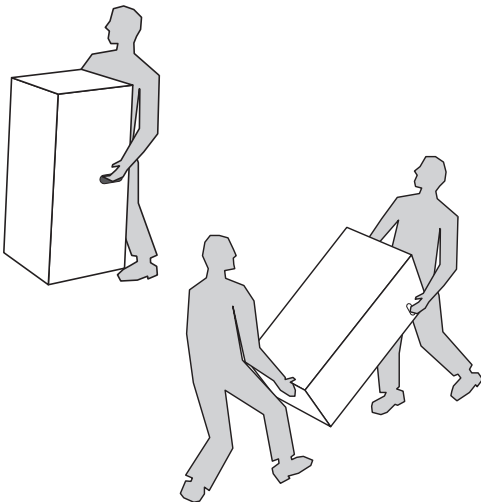
Total height tolerance +10 / -3

##### 3.3.1 Delivery

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

**⚠ CAUTION**

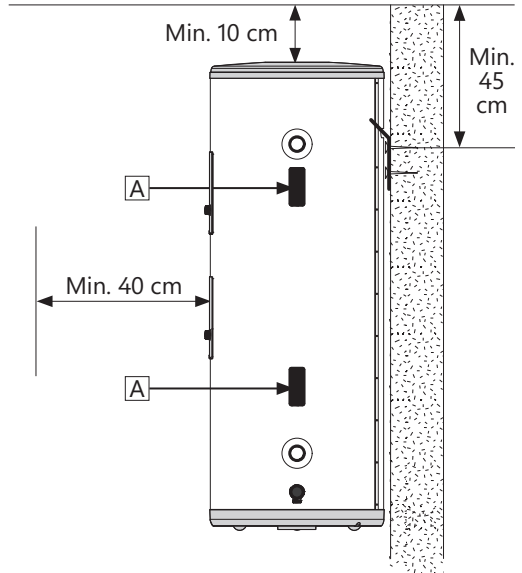
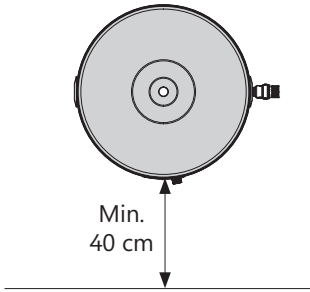
Pipe stubs, valves etc. should not be used to lift the product as this could cause malfunctions.



### 3.4 Requirements for installation location and positioning

#### ⚠ CAUTION

❗	The product should be placed in a room with a drain, in accordance with local laws and regulations. Alternatively, fit an automatic stop valve with sensor and overflow from safety valve to drain.
❗	The product should be placed in a dry and permanently frost-free position.
❗	The product should be placed on a floor or wall suitable for the total weight of the product when in operation. See type plate.
❗	The product must have a clearance for servicing of 40 cm in front of the junction box / 10 cm over the top connection.
❗	The product should be easily accessible for servicing and maintenance.



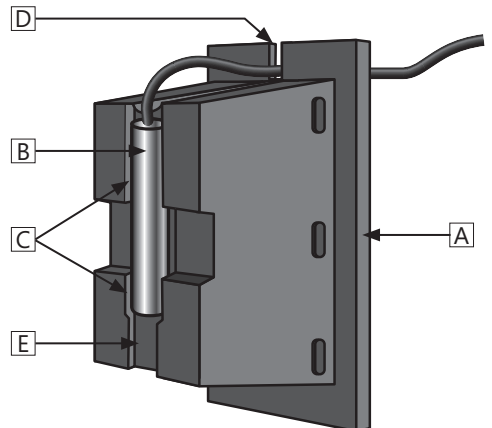
#### 3.4.1 Installation of wall bracket

The wall bracket (supplied) must be fitted to a wall suited to carry the total weight of the product when in operation. Use suitable fasteners for the chosen wall type. When fitting on a wood/dry wall ensure that at least two screws are attached to a solid beam. Use screws of suitable length.

#### 3.4.1 Temperature sensor installation

The product is equipped with a temperature sensor bracket which allows installation of a 6 or 8 mm. temperature sensor. To install the temperature sensor follow the instructions below.

1. Remove temperature sensor bracket (A) from tank body by gripping it and pulling straight out.
2. Insert temperature sensor (B) firmly into the appropriate grooves in the sensor bracket and place the temperature sensor cable in the cable slot (D).  
An 8 mm. sensor (shown) fits in the upper grooves (C) while a 6 mm. sensor fits in the lower groove (E).
3. Refit the sensor bracket into the tank body, ensuring the bracket is inserted fully to establish proper contact between the sensor and the stainless steel inner tank surface. Make sure the sensor cable is positioned properly in the cable slot (D) to avoid potential damage to the cable.



### 3.5 Pipe installation

Approved pipes of the correct dimension should be used for installation. The relevant standards and regulations must be followed.

No.	Dimension	Connection description
1	1/2" internal thread	Venting / unmixed hot water
2	1" int. thread	Upper cylinder connection
3	For 6/8 mm. sensor	Connection for sensor
4	1" int. thread	Lower cylinder connection
5	∅15 mm smooth	Draining/safety valve

#### 3.5.1 Pipe and plug fitting

- Run pipes of suitable size to the cylinder connections shown (2 and 4), and affix with suitable sealant.
- Unused connections must be plugged securely. Use the provided 1" brass plugs. Ensure the o-ring seal (7) is placed correctly in the o-ring groove (6) before fitting.
- Fit Automatic air vent valve to venting connection (1) after filling. See pt. 4.1.
- Fit Safety valve to drain connection (5).

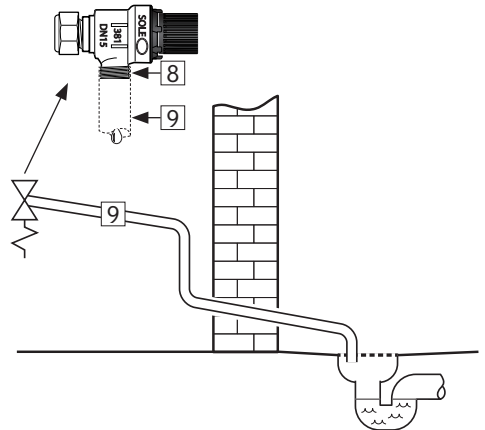
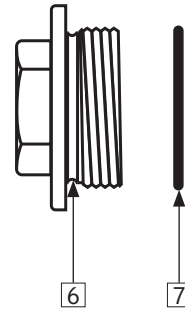
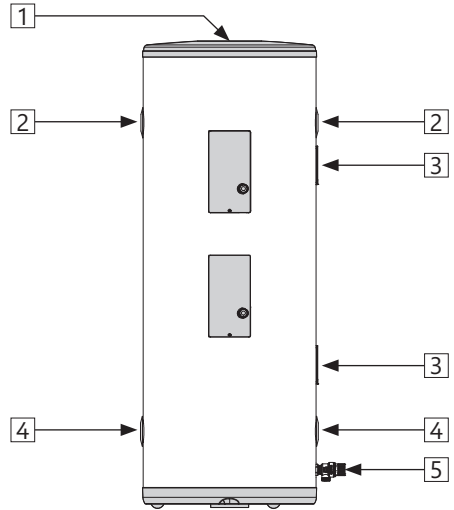
#### 3.5.2 Fitting overflow pipes

Run an overflow pipe (9) ≥ 18 mm internal diameter to the safety valve;

- Connect to the overflow (8) of the safety valve (1/2" external thread).
- The overflow pipe must be fitted uninteruptable, frost free and sloping to drain or gully.





#### 3.5.2 Torque settings

Component	Torque
Automatic air vent valve - 1/2"	5 Nm (+/-1 - hand force)
Safety valve - 1/2"	40 Nm (+/-5)
Brass plug - 1"	40 Nm (+/-5)





### 3.5.4 Fitting instructions

 CAUTION	
	The product should be placed in a room with a drain, in accordance with local laws and regulations. Alternatively, fit an automatic stop valve with sensor and overflow from safety valve to drain.
	The product should be properly aligned vertically and horizontally, on a floor suitable for the total weight of the product when in operation. See type plate.
	The product must have a clearance for servicing of 40 cm in front of the junction box / 10 cm over the top connection.

### 3.5.5 Fitting recommendation

RECOMMENDATION	
-	For installation in a room which does not conform to the wetroom standard, a watertight drip tray with overflow pipe $\geq 18$ mm. inside diameter should be fitted under the product, in addition to an automatic stop valve with sensor. This will prevent possible material damage.

### 3.6 Electrical installation

Fixed electric fittings should be used for installation in accordance with local regulations. Any fixed electric fittings must be installed by an authorised electrician. The relevant standards and regulations must be followed.

#### 3.6.1 Electrical components

Component	Note
Safety thermostat	85°C thermal cut-out
Work thermostat	30-60°C adjustable
Heating element	1-phase 230 V
Mains cable	Heat-resistant
Internal wires	Heat-resistant

#### 3.6.2 Electrical connections in the junction box

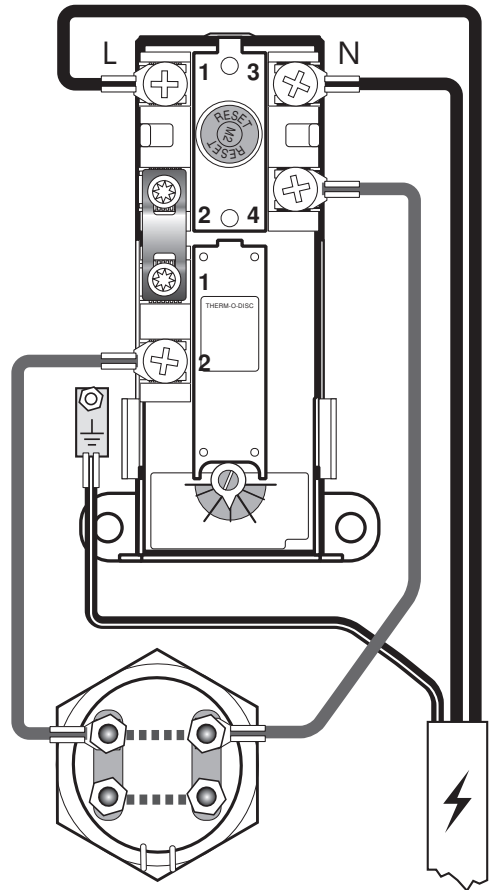
This product is fitted with two identical electric junction boxes, each with 2,8 kW / 1x230V effect. See illustration. The junction boxes require two separate power supplies.

⚠ WARNING
Constant voltage is present at terminals L and N. Before any electrical work is done, the power supply must be disconnected and secured against activation while the work is in progress.

- A) Live wire (L) connected to point '1' on the safety thermostat.
- B) Neutral wire (N) connected to point '3' on the safety thermostat.
- C) Yellow wire with green stripe  $\oplus$  Earth – connected to the earth terminal on the inner tank; see illustration.
- D) Internal wires from the element to the thermostat are connected to point '4' on the safety thermostat and point '2' on the work thermostat. See illustration.





#### 3.6.3 Torque settings




Component	Torque
1" heating element	38 Nm (+/- 5)
Thermostat screws	2 Nm (+/- 0.1)
Screw on the element head	2 Nm (+/- 0.1)



Electrical connection, diagram

### 3.6.4 Fitting instructions

 WARNING	
	The product must be filled with water before the power is switched on.
	Fixed electrical fittings must be used for installation according to the regulations. Any electric fittings must be installed by an Authorized electrician.
	The mains cable should withstand 90°C continuously. A suitable strain reliever must be fitted.

 CAUTION	
	The product must have a clearance for servicing of 40 cm in front of the junction box / 10 cm over the top connection.
	In case of damage to the power supply cable, this should be replaced with new cable with the correct specifications for the installation. All electrical work should be performed by an Authorized electrician.

### 3.6.5 Fitting recommendation

RECOMMENDATION	
-	The power cable supplied with the product should be used for the electrical connection (heat resistant).
-	An Authorized electrician should calculate the correct supply cable and fuse according to the applicable standards and regulations.
-	The power supply to the product should be installed in such a manner that it is not at risk of exposure to mechanical, thermal or chemical damage.

## 4. INITIAL COMMISSIONING

### 4.1 Filling with water

First check that all pipes are connected correctly. Then fill the tank according to the needs/requirements of the system. Make sure that the tank is vented during filling to prevent air pockets.

### 4.2 Turning on the power

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

A) Switch on breaker/fuse.

### 4.3 Control points

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 exposure to mechanical, thermal or chemical damage.

C) Check that any overflow pipe from the safety valve is uninterrupted, undamaged and frost-free, sloping to the drain.

D) Check that the product is standing firmly vertically and horizontally.

### 4.4 Emptying of water

#### ⚠ WARNING

The water temperature in the product is up to 60°C and could cause scalding. Special care should therefore be taken when emptying the product.

A) Disconnect both power supplies.

B) Shut off incoming water supply.

C) Open the air vent valve (1). Leave open while draining (prevents vacuum).

D) The product is emptied by opening the safety valve (5): Turn knob counter-clockwise until the valve is open and water flows freely.

After draining close the safety valve (5) by turning further counter-clockwise until the valve shuts. Close air vent valve (1).

If quicker draining is desired the safety valve can be removed. Unscrew the compression fitting and remove valve.

Refit the safety valve correctly after draining. See table 3.5.2 for torque settings.

### 4.5 Handover to end-user

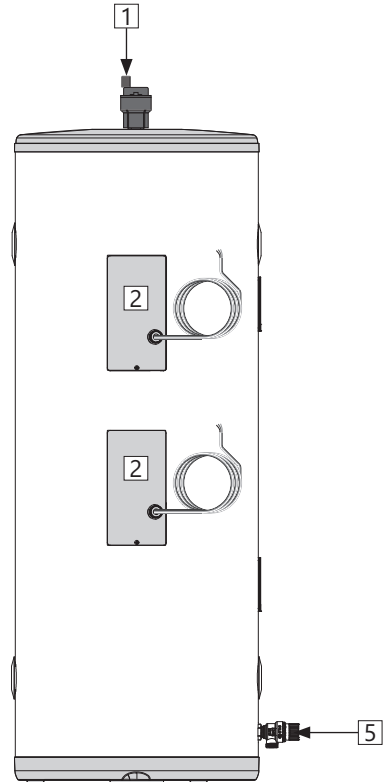
#### THE INSTALLER MUST:

Brief the end-user on safety and maintenance instructions.

Brief the end-user on settings and emptying the product.

Hand this installation manual over to the end-user.

Enter contact details on the type plate on the product.



## 5. USER GUIDE

### 5.1 Settings

#### 5.1.1 Thermostat setting


The product thermostats are adjustable from 30-60°C. To adjust the temperature:

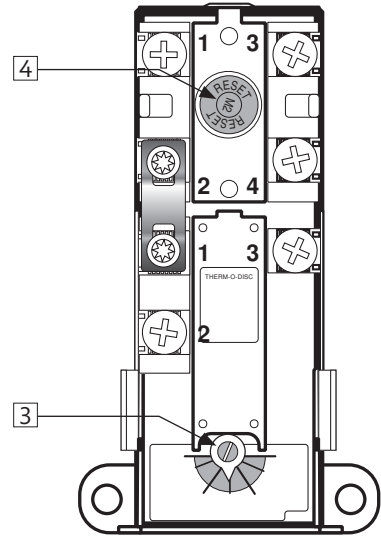
- A) Disconnect the power supply.
- B) Remove the junction box cover (2) with a screwdriver.
- C) Adjust the temperature on the thermostats (3) with a screwdriver.

Refit the junction box cover (2) before connecting the power supply.

#### 5.1.2 Resetting the safety thermostat



The safety thermostats on the product cut out when there is a risk of overheating. These are reset by switching off the power supply, removing the cover (2) and pressing the red 'RESET' button (4). If the thermostat cuts out repeatedly, contact the installer.

 <b>WARNING</b>
<p>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.</p>



### 5.2 Maintenance

#### MAINTENANCE INSTRUCTIONS

	Maintenance should be carried out by persons over 18 years of age, with sufficient understanding.
	Annual inspection of safety valve:
-	Open valve for 1 min. by turning the knob (6) approx. 90 degrees counter-clockwise to the open position.
-	Visually check that the water is flowing freely to the drain.
-	YES = OK. Close the valve by turning the knob (90) a further 90 degrees counter-clockwise to the closed position.
-	NO = NOT OK. Disconnect power supply / shut off water supply. Contact installer.



## 6. TROUBLESHOOTING

### 6.1 Faults and fixes

If problems arise when the product is in use, check for possible faults and fixes in the table. If you are unsure what is wrong, contact the

installer (see product type plate) or OSO Hot-water AS - see section 7.1.

TROUBLESHOOTING		
Problem	Possible cause of fault	Possible solution
<b>There is leakage/dripping from the safety valve/ there is often water on the floor by the cylinder in the morning</b>	Pressure reduction valve, water meter or blocked non-return valve is fitted on the water intake.  Water pressure into the system is too high.	Fit AX expansion vessel which absorbs expansion during heating, and fit pressure reduction valve for stable water pressure inside the system. The pressure reduction valve is adjusted in according to the pressure in the expansion vessel. Contact auth. installer.
	The safety valve is worn or there are particles 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) unscrew the cover, c) visually check whether there is a leak from the heating element. If so, replace the gasket/heating element. Contact auth. installer.
<b>No hot water</b>	Power supply interrupted.	Verify that the fuse is on / the plug is plugged in to the wall contact / the earth breaker has not tripped.
	Safety 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 water supply, b) wait 2-3 hours, c) feel the tank to see whether it is hot. If so, there is a leak in the hot water pipe or elsewhere. Contact auth. installer.
<b>Not enough hot water</b>	High consumption in the system.	Switch to a larger OSO water heater. Contact auth. installer.
<b>Not high enough temperature</b>	The thermostat is set too low	Check the thermostat settings. Turn up to 70°C; see 'User guide'.
	Crossover leak from cold to hot water in taps.	Contact auth. installer.
<b>Fuse/earth breaker trips repeatedly</b>	Possible fault in the heater's electrical system.	Verify as follows: a) cut the electric supply, b) unscrew the cover, c) visually check the junction box for any problems. If so, contact auth. installer to check. Fit the cover.
<b>Long time before the water reaches the tap</b>	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.
<b>Knocking in the pipes when the hot tap is closed</b>	Large pressure increase when the tap is closed quickly.	Completely normal. Fit AX expansion vessel if troublesome. Contact auth. installer.

# 7. WARRANTY CONDITIONS

## 1. Scope

OSO Hotwater AS (hereinafter called OSO) warrants for 2 years from the date of purchase, that the Product will: i) conform to OSO specification, ii) be free from defects in materials and workmanship, subject to conditions below. All components carry a 2-year warranty.

The warranty is voluntarily extended by OSO to 5 years for the stainless steel inner tank. This extended warranty only applies to Products purchased by a consumer, that has been installed for private use and that has been distributed by OSO or by a distributor where the Products have been originally sold by OSO. The extended warranty does not apply to Products purchased by commercial entities or for Products that have been installed for commercial use. These shall be subject only to the mandatory provisions of the law. The conditions and limitations set out below shall apply.

## 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 shall 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. OSO will in such cases not cover any other associated costs.

Any exchanged Product or component will become the legal property of OSO. Any valid claim or service does not extend the original warranty. The replacement Product or part does not carry a new warranty.

## 3. Conditions

The Product is manufactured to suit most public water supplies. However, there are certain water chemistries (outlined below) that can have a detrimental effect on the Product and its life expectancy. If there are uncertainties regarding water quality, the local water supply authority can supply the necessary data.

The warranty applies only if the conditions set out below are met in full:

- The Product has been installed by a professional installer, in accordance with the instructions in the installation manual and all relevant Codes of Practice and Regulations in force at the time of installation.
- The Product has not been modified in any way, tampered with or subjected to misuse and no factory fitted parts have been removed for unauthorized repair or replacement.
- The product has been connected to the public power grid and it has not been connected to an external power supply control unit not approved by OSO.
- The Product has only been connected to a domestic mains water supply in compliance with the European Drinking

Water Directive EN 98/83 EC, or latest version. The water should not be aggressive, i.e. the water chemistry shall comply with the following:

- Chloride < 250 mg / L
- Electric Conductivity (EC) @25°C < 750 uS / cm
- Saturation Index (LSI) @80°C > - 1,0 / < 0,8
- pH level > 6,0 / < 9,5

- The product has only been fitted in a closed circuit system.
- The immersion heater has not been exposed to hardness levels exceeding 10°dH (180 ppm CaCO3). A water softener is recommended in such cases.
- Any disinfection has been carried out without affecting the Product in any way whatsoever. The Product shall be isolated from any system chlorination.
- The Product has been in regular use from the date of installation. If the Product is not intended to be used for 60 days or more, it must be drained.
- Service and/or repair shall be done according to the installation manual and all relevant codes of practice. Any replacement parts used shall be original OSO spare parts.
- Any third-party costs associated with any claim has been authorized in advance by OSO in writing.
- The purchase invoice and/or installation invoice, a water sample as well as the defective product is made available to OSO upon request.

Failure to follow these instructions and conditions may result in product failure, and water escaping from the Product.

## 4. Limitations

The warranty does not cover:

- Any fault or costs arising from incorrect installation, incorrect application, lack of regular maintenance in accordance with the installation manual, neglect, accidental or malicious damage, misuse, any alteration, tampering or repair carried out by a non-professional, any fault arising from the tampering with or removal of any factory fitted safety components or measures.
- Any consequential damage or any indirect loss caused by any failure or malfunction of the Product whatsoever.
- Any pipework or any equipment connected to the Product.
- The effects of frost, lightning, voltage variation, lack of water, connecting to a non approved external power supply control unit, dry boiling, excess pressure or chlorination procedures.
- The effects of stagnant (de-aerated) water if the Product has been left unused for more than 60 days consecutively.
- Damage caused during transportation. Buyer shall give the carrier notice of such damage.
- Costs arising if the Product is not immediately accessible for servicing.

These warranties do not affect the Buyer's statutory rights.

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

# 8. REMOVING THE PRODUCT

## 8.1 Removal

- A) Disconnect the power supply.
- B) Shut off incoming cold water supply.
- C) Empty the product of water – see section 4.4.
- D) Disconnect all pipes.
- E) The product can now be removed.

## 8.2 Returns scheme

This product is recyclable and should be taken to the environmental recycling centre. If the product is to be replaced with a new one, the installer can take the old cylinder away for recycling.

# OSO

HOTWATER

**OSO Hotwater AS**

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