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6720812247-00-1V

Electrical storage water tank

Tronic 8000T

ES 035/050/080/100/120/150 5...



BOSCH

User and Installation manual

6720817877 (2015/07) MT

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Notes

Notes

1 Key to symbols and safety instructions

1.1 Key to symbols

Warnings



Warnings in this document are identified by a warning triangle printed against a grey background. Keywords at the start of a warning indicate the type and seriousness of the ensuing risk if measures to prevent the risk are not taken.

The following keywords are defined and can be used in this document:

- **NOTICE** indicates a situation that could result in damage to property or equipment.
- **CAUTION** indicates a situation that could result in minor to medium injury.
- **WARNING** indicates a situation that could result in severe injury or death.
- **DANGER** indicates a situation that will result in severe injury or death.

Important information



This symbol indicates important information where there is no risk to people or property.

Additional symbols

Symbol	Explanation
▶	Step in an action sequence
→	Cross-reference to another part of the document
•	List entry
–	List entry (second level)

Table 1

1.2 Security Measures

Installation

- ▶ Installation must only be carried out by an authorised service.
- ▶ IEC 60364-7-701 must be observed when installing the appliance and or electrical accessories.
- ▶ The appliance must be installed in a room free from the risk of frost.
- ▶ First connect the appliance hydraulically and fill with water, then connect the power supply.
- ▶ During the installation isolate the appliance from the power supply.

Installation and conversion

- ▶ Only permit an authorised service to install this appliance.
- ▶ Never obstruct the safety valve outlet.
- ▶ During the heat-up, water may be expelled from the safety valve.

Maintenance

- ▶ Only authorised technicians are permitted to service this appliance.
- ▶ Isolate the appliance from its power supply before commencing any maintenance work on the appliance.
- ▶ Customers are responsible for the safety and environmental compatibility of the appliance as well as its maintenance.
- ▶ Use only original spare parts.
- ▶ To ensure compliance with all safety requirements, a defective power cable may only be replaced by an authorised service.

Instructing the customer (for the installer)

- ▶ Instruct the customer in the function and operation of this appliance.
- ▶ It is the responsibility of customers to carry out regular maintenance and inspections.
- ▶ The appliance must be serviced annually.
- ▶ Inform customers that they must not carry out any modifications or repairs.

Safety of electrical appliances for domestic use and similar purposes

The following requirements apply in accordance with EN 60335-1 in order to prevent hazards from occurring when using electrical appliances:

“This appliance can be used by children of 8 years and older, as well as by people with reduced physical, sensory or mental capabilities or lacking in experience and knowledge, if they are supervised and have been given instruction in the safe use of the appliance and understand the resulting dangers. Children must not play with the appliance. Cleaning and user maintenance must not be performed by children without supervision.”

“If the power cable is damaged, it must be replaced by the manufacturer, its customer service department or a similarly qualified person, so that risks are avoided.”

2 Technical Characteristics and dimensions

2.1 Intended use

The appliance was designed to heat and store DHW. Comply with all regulations and standards related to drinking water applicable in the country.

Use the appliance only in closed systems.

Using the appliance for any other purpose will be considered incorrect use. Bosch accepts no liability for any damage resulting from such use.

Water characteristics	Unit
Water hardness, min.	ppm grain/US gallon
	36 2.1
	°dH
	2
pH, min. – max.	6.5 – 9.5
Conductivity, min. – max.	µS/cm
	130 – 1500

Table 2 Water characteristics

2.2 Type overview

ES	035	5	1200W	BO	H1	X	E	D	W	V	B
ES	050	5	1600W	BO	H1	X	E	D	W	R	B
ES	080	5	2000W	BO	H1	X	E	D	W	R	B
ES	100	5	2000W	BO	H1	X	E	D	W	R	B
ES	120	5	2000W	BO	H1	X	E	D	W	R	B
ES	150	5	2400W	BO	H1	X	E	D	W	R	B

Table 3

[ES]	Electrical storage water tank
[035]	Capacity (liters)
[5]	Version
[1200W]	Power
[BO]	Brand
[H1]	Design
[X]	Diameter standard
[E]	Electronic
[D]	Display
[V]	Vertical installation
[W]	Wall mounted
[R]	Reversible
[B]	Bottom connections

2.3 Appliance Description

- Steel-glassed tank in conformity with the European regulations
- Tank designed and built to withstand high pressures
- Exterior material: steel sheeting and / or plastic
- Easy handling
- Insulating material: polyurethane without CFC
- Anticorrosion protection: magnesium anode.

2.4 Anticorrosion protection

The inside of the tank is lined with homogeneous glass enamel, completely neutral with regards to compatibility and contact with potable water. This lining is neutral with regard to the use with potable water. The existence of a magnesium anode provides additional anticorrosion protection.

2.5 Accessories (included in the appliance packaging)

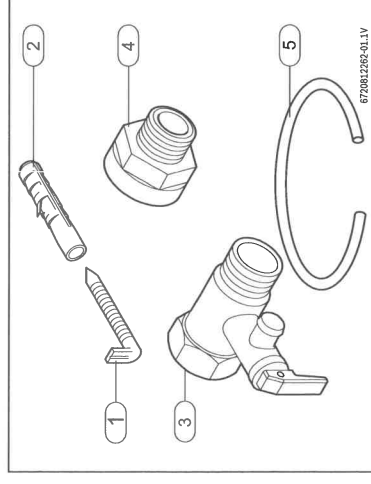


Fig. 1

- [1] Hook (2x)¹⁾
- [2] Sleeve (2x)¹⁾
- [3] Safety valve (8 bar)
- [4] Galvanic insulator (2x)¹⁾
- [5] Drain tube¹⁾

1) available in some models (depending on the market)

Problem	Cause	Solution
X	Device incorrectly dimensioned for the consumption.	<ul style="list-style-type: none"> ▶ Replace by another, following the consumption.

Table 9

9.1.1 Display indications

Display	Cause	Solution
E1	Faulty (open circuit) temperature sensor.	<ul style="list-style-type: none"> ▶ Turn off the appliance. ▶ Call an authorized technician.
E2	Short circuit sensor.	<ul style="list-style-type: none"> ▶ Turn off the appliance. ▶ Call an authorized technician.

Table 10

2.6 Specification

This appliance meets the requirements specified by the European Directives 2014/35/EC and 2014/30/EC.

Technical characteristics		Unit	ES 035	ES 050	ES 080	ES 100	ES 120	ES 150
General characteristics								
Capacity	l		34	47	76	95	115	142
Weight (empty)	kg		11,8	19,2	22,5	25,8	29,3	35,0
Weight when full	kg		45,8	66,2	98,5	120,8	144,3	177,0
Water details								
Maximum permissible pressure	bar		8					
Water connections	inches		1/2					
Electrical characteristics								
Nominal power	W		1200	1600	2000	2000	2000	2400
Heating time ($\Delta T = 50\text{ }^\circ\text{C}$) ¹⁾			1h 41 min	1h 49 min	2h 10 min	2h 54 min	3h 29 min	3h 38 min
Voltage	Vac		230					
Frequency	Hz		50					
Monophasic electric current	A		5,2	6,5	8,7	8,7	8,7	10,4
Power cable (with plug)			H05W-F 3 x 1,5 mm ²					
Protection class			I					
Type of protection			IPX4					
Water temperature								
Temperature ranges	°C		8 - 70 °C					

Table 4 Technical characteristics

1) Vertical installation

2.7 Product data on energy consumption

The following product data complies with the requirements of EU Regulations 811/2013, 812/2013, 813/2013, 813/2013 and 814/2013 as supplement to the Directive 2010/30/EU.

Product data	Symbol	Unit	7736503471	7736503472	7736503473
Product type	-	-	ES 035 5 1200W BO	ES 050 5 1600W BO	ES 080 5 2000W BO
Emissions of nitrogen oxides	NO _x	mg/kWh	H1X-EDWVB	H1X-EDWRB	H1X-EDWRB
Sound power level, indoors	L _{WA}	dB(A)	0	0	0
Declared load profile	-	-	S	M	M
Water heating energy efficiency class	-	-	C	C	C
Water heating energy efficiency	η_{wh}	%	32	38	35
Annual electricity consumption	AEC	kWh	574	1 358	1 418
Daily electricity consumption (average climate conditions)	Q _{elec}	kWh	2,736	6,284	6,638
Annual fuel consumption	AFC	GJ	0	0	0
Daily fuel consumption	Q _{fuel}	kWh	0	0	0

Table 5 Product data on energy consumption

Product data	Symbol	Unit	7736503471	7736503472	7736503473
Smart control enabled?	-	-	No	No	No
Mixed water T= 40 °C	V ₄₀	l	40	71	105
Storage volume	V	l	34	47	76
Thermostat temperature (factory setting)	T _{set}	°C	55	60	60
Indication about ability working only during off-peak hours	-	-	No	No	No

Table 5 Product data on energy consumption

Product data	Symbol	Unit	7736503474	7736503475	7736503476
Product type	-	-	ES 100 5 2000W BO H1X-EDWRB	ES 120 5 2000W BO H1X-EDWRB	ES 150 5 2400W BO H1X-EDWRB
Emissions of nitrogen oxides	NO _x	mg/kWh	0	0	0
Sound power level, indoors	L _{WA}	dB(A)	15	15	15
Declared load profile	-	-	L	L	XL
Water heating energy efficiency class	-	-	C	C	C
Water heating energy efficiency	η _{wh}	%	37	39	39
Annual electricity consumption	AEC	kWh	2 753	2 652	4 334
Daily electricity consumption (average climate conditions)	Q _{elec}	kWh	12,801	12,205	19,935
Annual fuel consumption	AFC	GJ	0	0	0
Daily fuel consumption	Q _{fuel}	kWh	0	0	0
Smart control enabled?	-	-	No	No	No
Mixed water T= 40 °C	V ₄₀	l	139	144	237
Storage volume	V	l	95	115	142
Thermostat temperature (factory setting)	T _{set}	°C	70	60	70
Indication about ability working only during off-peak hours	-	-	No	No	No

Table 6 Product data on energy consumption

9 Problems

9.1 Problem/Cause/Solution



DANGER:
Assembly, maintenance and repairs should only be carried out by authorized technicians.

In the following diagram there are some solutions described for possible problems / troubleshooting (these should only be performed by authorized technicians).

Problem	Cause	Solution
Cold water		
X	Very hot water	
	Insufficient capacity	
	Continuous draining from the safety valve	
	Rust coloured water	
	Water with a scent (bad smell)	
	Noise in the appliance	
X	Plant or circuit breaker surcharge (capacity exceeded).	<ul style="list-style-type: none"> Verify if the device is connected to a dedicated electric point to supply sufficient electric current to the device.
X		<ul style="list-style-type: none"> Regulate the thermostat.
X	Incorrect temperature regulating through the thermostat.	<ul style="list-style-type: none"> Replace the thermostat.
X	Thermostat temperature safety active.	<ul style="list-style-type: none"> Replace or re-install the thermostat.
X	Damaged heating element.	<ul style="list-style-type: none"> Replace the heating element.
X	Incorrect functioning of the thermostat	<ul style="list-style-type: none"> Replace or re-install the thermostat.
X	Device incrustation and / or from the safety group.	<ul style="list-style-type: none"> Perform a descaling of the appliance. If necessary replace the safety group.
	X	<ul style="list-style-type: none"> Hydraulic system pressure.
	X	<ul style="list-style-type: none"> Verify the system pressure. If necessary install a pressure reducing valve.
	X	<ul style="list-style-type: none"> Hydraulic system capacity.
	X	<ul style="list-style-type: none"> Verify the piping.
	X	<ul style="list-style-type: none"> Appliance corrosion.
		<ul style="list-style-type: none"> Drain the appliance and check for interior corrosion. Replace the magnesium anode.
	X	<ul style="list-style-type: none"> Bacteria development.
		<ul style="list-style-type: none"> Drain, clean the device. Disinfect the appliance.

Table 9

- ▶ Unscrew the flange fastening nut (Fig. 13, [2]).
- ▶ Remove the flange from the inside of the appliance (Fig. 13, [1]).
- ▶ Verify the magnesium anode (Fig. 13, [3]) and replace it if necessary.

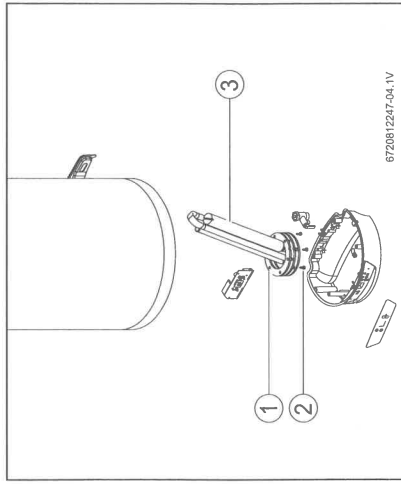


Fig. 13 Access and identifying internal components

- 1] Fastening screw
- 2] Flange
- 3] Magnesium anode

8.3.3 Periodic cleaning



DANGER: Burn risk!
During the periodic cleaning process the hot water may cause serious burns.

- ▶ Carry out this operation outside working hours.

- ▶ Turn off all hot water taps.
- ▶ Inform all residents of the danger of burns.
- ▶ Position the thermostat on the maximum position.
- ▶ Wait until the indicator turns off.
- ▶ Open all the hot water taps, starting with the nearest one to the furthest one from the appliance, and purge all the hot water from inside the appliance, at least 3 minutes.
- ▶ Turn off all the hot water taps, and position the thermostat on the normal working position.

8.3.4 Long standing - non working (more than 3 months)



After a long period of inactivity you should change the water inside the appliance (more than 3 months).

- ▶ Switch off the electric current to the appliance.

- ▶ Drain the appliance completely.
- ▶ Fill the appliance until the water comes out from all the hot water taps.
- ▶ Turn on the appliance to the electric current.

8.4 Safety thermostat

The appliance is equipped with an automatic safety thermostat. If for any reason the water temperature inside the appliance exceeds the safety limit, the switch will trigger and cut all electric current supplying the appliance, thus avoiding any accidents.



DANGER: The reactivation of the appliance should only be done by an authorized technician!

The action to manually re-start or reactivate should only be done once the cause of which initiated this action has been identified and rectified. To reactivate the device:

- ▶ Unscrew and remove the appliance lid (Fig. 14, [1]).
- ▶ Press the button firmly (Fig. 14, [2]).

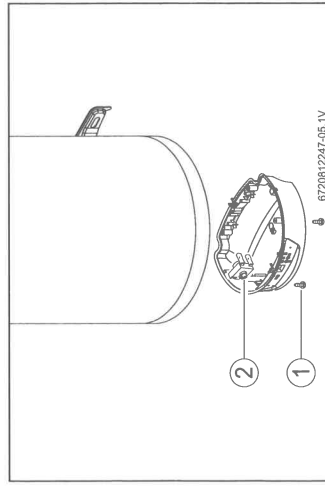


Fig. 14 Re-start button

8.5 Required actions after any maintenance work has been carried out

- ▶ Refasten and check the fastness of all the water connections.
- ▶ Turn on the appliance.

2.8 Dimensions

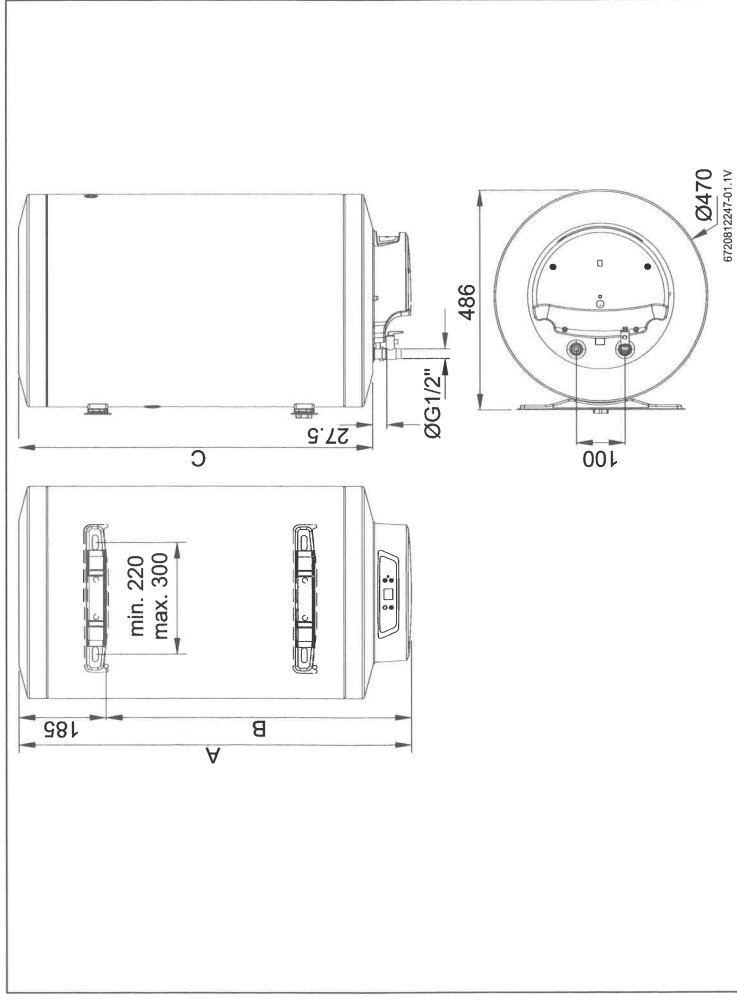


Fig. 2 Dimensions in mm (Vertical installation)

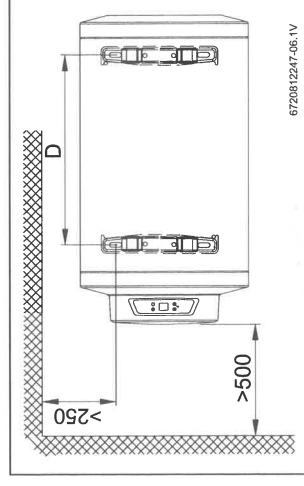


Fig. 3 Dimensions in mm (Horizontal installation)

Model	A	B	C	D
ES035...	485	300	405
ES050...	585	400	505	180
ES075...	810	625	730	407
ES100...	960	775	880	552
ES120...	1110	925	1030	702
ES150...	1329	1144	1250	922

Table 7

2.9 Components

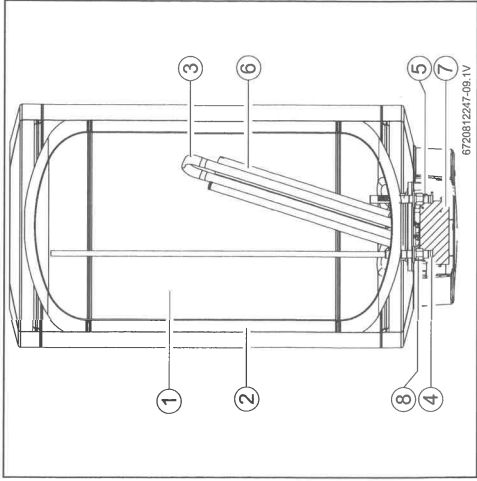


Fig. 4 Appliance composition

- [1] Tank
- [2] Insulating material - polyurethane
- [3] Heating element
- [4] Hot water outlet 1/2" male
- [5] Cold water inlet 1/2" male
- [6] Magnesium anode
- [7] Safety and control thermostat
- [8] Galvanic insulator

2.10 Electric diagram

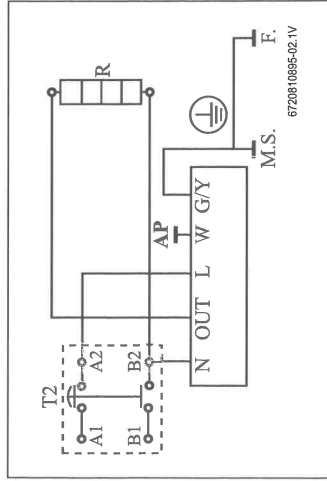


Fig. 5 Electric circuit diagram

3 Regulator

The country's regulations currently in force must be fulfilled for the installation of the electric appliances

4 Transport

- ▶ Do not drop the appliance.
- ▶ Remove the appliance from the packaging only at the place of installation.

4.1 Transport, storage and recycling regulations

- The equipment should be stored in protected areas against negative temperatures.
- Whenever applicable, the EU 2002/96/EC directive imposed and the differentiated collection / gathering of used electrical and electronic equipment.

5 Installation (only for authorized installers)

Installation, power connection and commissioning must only be carried out by a service approved for such work by the local entities.

5.1 Important information

- ▶ **CAUTION:** Do not drop the appliance.
- ▶ Remove the appliance from the packaging only at the place of installation.
- ▶ Wherever applicable, comply with the IEC 60364-7-701 norm on installing the appliance and / or any electric accessories.
- ▶ Chose a sufficiently robust wall to support the appliance with the tank full, see page 5.

CAUTION: Damage to the heating elements!

- ▶ Firstly connect all the water connections and fill the appliance.
- ▶ Connect the appliance to the electric point, assuring connection to earth.

5.2 Selecting the installation location

- ▶ **CAUTION:** Chose a sufficiently robust wall to support the appliance with the tank full, see page 5.

Old electrical and electronic appliances

Electrical or electronic devices that are no longer serviceable must be collected separately and sent for environmentally compatible recycling (in accordance with the European Waste Electrical and Electronic Equipment Directive).

To dispose of old electrical or electronic devices, you should use the return and collection systems put in place in the country concerned.

8 Maintenance

Maintenance must only be carried out by an authorized technician.

8.1 User information

8.1.1 Cleaning

- ▶ Never use abrasive, corrosive or solvent cleaning detergents.
- ▶ Use a soft cloth to clean the exterior of the appliance.

8.2 Safety valve verification

- ▶ Verify that the water is expelled during the heating process through the safety purge valve.
- ▶ Never obstruct the safety purge valve outlet.

8.2.1 Safety valve

- ▶ Manually open the safety valve at least once a month (Fig. 12).

WARNING:

Ensure the purging of the water does not cause any damage to persons or goods.

8.2.2 Maintenance and repair

- ▶ It is the responsibility of the client to regularly call out technical assistance or an authorized technician to perform periodic maintenance.

8.3 Periodic maintenance work

WARNING:

Before carrying out any maintenance work:

- ▶ Turn off all electric current.
- ▶ Turn off the water cut off valve (→ Fig. 10).

- ▶ Only make use of genuine replacement parts.
- ▶ Order the replacement parts in accordance with the parts catalogue for the appliance.
- ▶ When carrying out maintenance work change the disassembled joints and replace these with new ones.

8.3.1 Functionality verification

- ▶ Verify the good working order of all the elements.

CAUTION: Damages to the glass enamel!

Never clean the enamel interior of the appliance with decalcifying agents. The magnesium anode ensures anti corrosion protection. There is no need for alternative products for the protection of the enamel.

8.3.2 Magnesium Anode

This appliance disposes of an anti-corrosion magnesium anode in the inside.

WARNING:

It is forbidden to operate the appliance without an installed magnesium anode.

WARNING:

The magnesium anode needs to be annually tested and replaced if necessary, failing to do so will result in the termination of the warranty. The appliance without this type of protection will not be covered by the manufacturer's warranty.

- ▶ Switch off the circuit breaker feeding the appliance.
- ▶ Before starting, verify that the appliance is disconnected from the electric current.
- ▶ Completely drain the appliance (→ section 6.3).
- ▶ Remove the lid of the appliance.
- ▶ Disconnect the connecting cables to the thermostat.



CAUTION: The first start-up of the appliance must be carried out by an authorized technician, which will provide the user with all the necessary information to the best working and handling of the device.

6.1 Turning the appliance on/off

Turn on

- ▶ Press on/off switch.

Turn off

- ▶ Press on/off switch.

6.2 Temperature regulation



Once the water has reached the selected temperature level, the appliance stops heating up (the indicator (Fig. 11, [2]) switches off). When the water temperature is below the desired value, the appliance restarts the heating cycle (the indicator switches back on) until it reaches the desired temperature selected.

- ▶ Press increase/decrease buttons until you reach desired temperature.

The temperature of the water outlet can be regulated between 8 °C and 70 °C.



Once the temperature is selected, the value is displayed for about 4 seconds. After this period the display shows the actual water tank temperature.

6.2.1 Display

Setting point lower than 60 °C

Display will always show the water temperature inside the tank.

Setting point equal or higher than 60 °C

Display will show the water temperature inside the tank. Display shows "CO" when the appliance detects a temperature difference higher than 15 °C between the setpoint and the actual water tank water temperature.

6.3 Emptying the appliance

- ▶ Turn off the appliance from the electric supply.

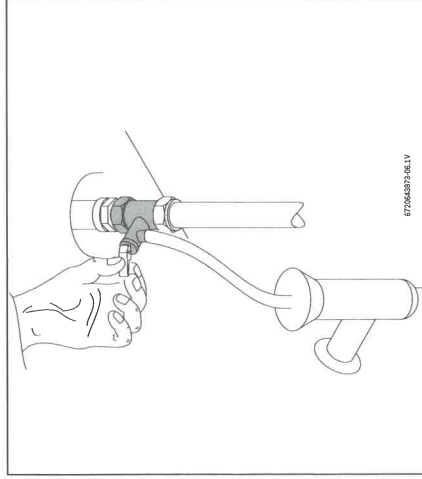


DANGER: Burn risk

Open a hot water tap and verify the temperature of the water in the appliance before opening the safety valve.

- ▶ Wait until the water temperature decreases in order to avoid burns or any other damage.

- ▶ Switch off the water cutting valve and open a hot water tap.
- ▶ Open the safety valve (Fig. 12).
- ▶ Wait until the appliance is completely empty.



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Fig. 12 Manual activation of the safety valve

7 Environment / disposal

Environmental protection is a fundamental corporate strategy of the Bosch Group.

The quality of our products, their efficiency and environmental safety are all of equal importance to us and all environmental protection legislation and regulations are strictly observed. We use the best possible technology and materials for protecting the environment taking into account of economic considerations.

Packaging

We participate in the recycling programmes of the countries in which our products are sold to ensure optimum recycling. All of our packaging materials are environmentally friendly and can be recycled.

Dispositions relative to the place of installation

- Comply with country-specific requirements
- Never install the appliance above a heat source.
- Never install the appliance in rooms where the ambient temperature can fall below 0 °C.
- Install the appliance near the most frequently used draw-off point to keep energy losses and waiting times to a minimum.
- Install the appliance in a room that permits the replacement of the magnesium anode, and necessary maintenance procedures.

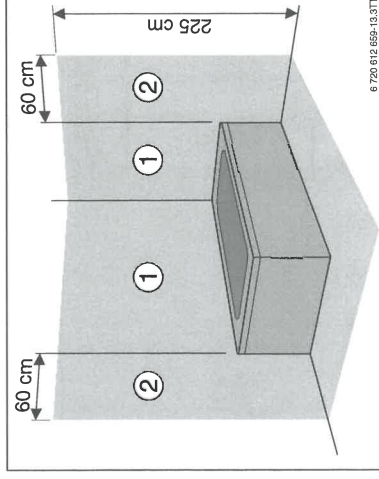
Protection areas 1 and 2

- ▶ Do not install in protection areas 1 and 2 (Fig. 6).
- ▶ Install the appliance outside the protection areas at a distance greater than 60 cm, of the bath.



CAUTION:

- ▶ Make sure that the appliance is connected to the DB board (electrical board) with a connection to the earth cable.



6 720 612 659 A 13 TT

Fig. 6 Protection areas

5.3 Wall mounting



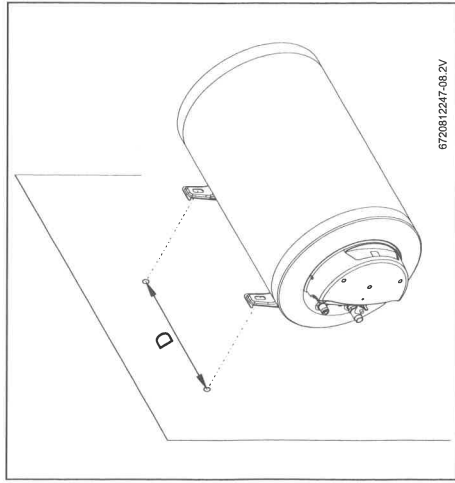
CAUTION: Appliance fall!

- ▶ Use sleeves and hooks (according with the type of wall) that can hold the appliance with the tank full.

Horizontal installation

NOTICE:

- ▶ Ensure that the hot water outlet is positioned on the upper part of the appliance.



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Fig. 8 Horizontal installation

Model	D
ES050...	180
ES075...	407
ES100...	552
ES120...	702
ES150...	722

Table 8

5.4 Water connection



- CAUTION:** Damage to appliance connections through contact corrosion!
- ▶ Use galvanized insulators in your water connections. These will avoid galvanic electric currents between the hydraulic link metals and, consequently corrosion of these.



- NOTICE:** Material damage!
- ▶ Install a filter at the water inlet in areas where the water contains particles or sediments.

It is recommended:

- ▶ to purge the system before appliance installation, the existence of sand can cause a reduction in flow or even cause a total obstruction.



- ▶ Identify the piping for hot and cold water, in order to avoid a possible swap (Fig. 9).

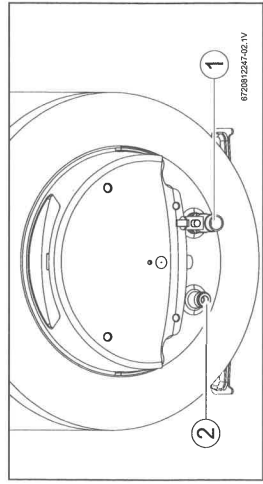


Fig. 9

- [1] Cold water inlet (right hand side)
- [2] Hot water outlet (left hand side)
- ▶ Use the appropriate connection accessories to do the hydraulic connection to the appliance.

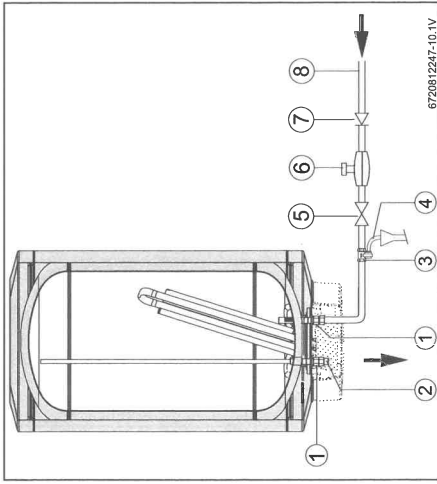


Fig. 10 Water connection

- [1] Galvanic insulator
- [2] Hot water outlet
- [3] Safety valve
- [4] Drain connection
- [5] Cut off valve
- [6] Reduction valve
- [7] Non return valve
- [8] Connection to the water line

In order to avoid problems caused by sudden pressure changes, we recommend the installation of a non return valve at the appliance (Fig. 10, [7]).



- In the case of freezing:
- ▶ Switch off the appliance.
 - ▶ Purge the appliance (→ chapter 6.3).

Safety valve

DANGER:

- ▶ Install a safety valve at the water inlet of the appliance (Fig. 10).



NOTICE: NEVER OBSTRUCT THE PURGE OUTLET OF THE SAFETY VALVE.

Never install any accessory between the safety valve and the cold-water inlet (right hands side) of the appliance.



If the pressure at the cold water inlet is superior to that of 80% of the maximum pressure of the appliance at, ie: 6,4 bar:

- ▶ Install a reducing valve (Fig. 10).



The safety valve will trigger every time the water pressure in the appliance exceeds 8 bar (± 0,5 bar). A facility for draining the expelled water must be provided.

5.5 Electric connection

DANGER: By electrical discharge!

- ▶ Before working on the electrical components, firstly cut the power, (fuse, circuit breaker or other).



All adjusting devices, verification and safety mechanisms were submitted to a rigorous test in factory and are ready to work.

CAUTION: Electrical protection!



- ▶ The appliance should dispose of an independent connection to the DB board (electric board), protected by a 30 mA differential circuit breaker and earthing.



The electrical connection must be realized in accordance with the current country laws regarding electrical installations.

- ▶ Connect the appliance via a socket with earth connection.

5.6 Start-up

- ▶ Verify that the appliance has been correctly installed and assembled.
- ▶ Open the water inlet valves.
- ▶ Open all the hot water taps in order to ensure all the air is out of the connections.
- ▶ Control the tightness of all the connections and ensure that the appliance fills to its full capacity.
- ▶ Connect the appliance to the electric current.
- ▶ Inform the customer of any user information of the appliance and handling.

6 Use

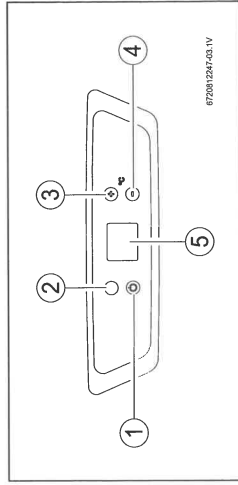


Fig. 11 User interface

- [1] on/off switch
- [2] Working indicator
- [3] Increase temperature
- [4] Decrease temperature
- [5] Display