Water-heater
Trouble-shooting

- General functioning
- Wiring diagram
- How to identify a water-heater
- Installation, general tips
- How to verify the Ohm on the heating element 750W
- How to verify the Ohm on the heating element 1200W
- How to verify the Ohm on the heating element 2000W
- How to replace the heating element
- How to replace the gaskets
- How to replace the thermostats
- How to replace the heating element bracket
- How to reset the thermal cut-off thermostat

How to replace the mixing valve

How to replace the pressure relief valve

How to fill up the water-heater

How to empty the water-heater

How to replace the installation brackets

How to replace the plug

The automatic differential switch triggers when plugging the water-heater

How to replace the plastic cover

Heating elements – Powers and compatibility

General functioning

The Isotemp water-heater allows to heat water up on board using two simple methods:

- With the electrical immersion heating element
- Using the heat exchange coil connected to the engine cooling system

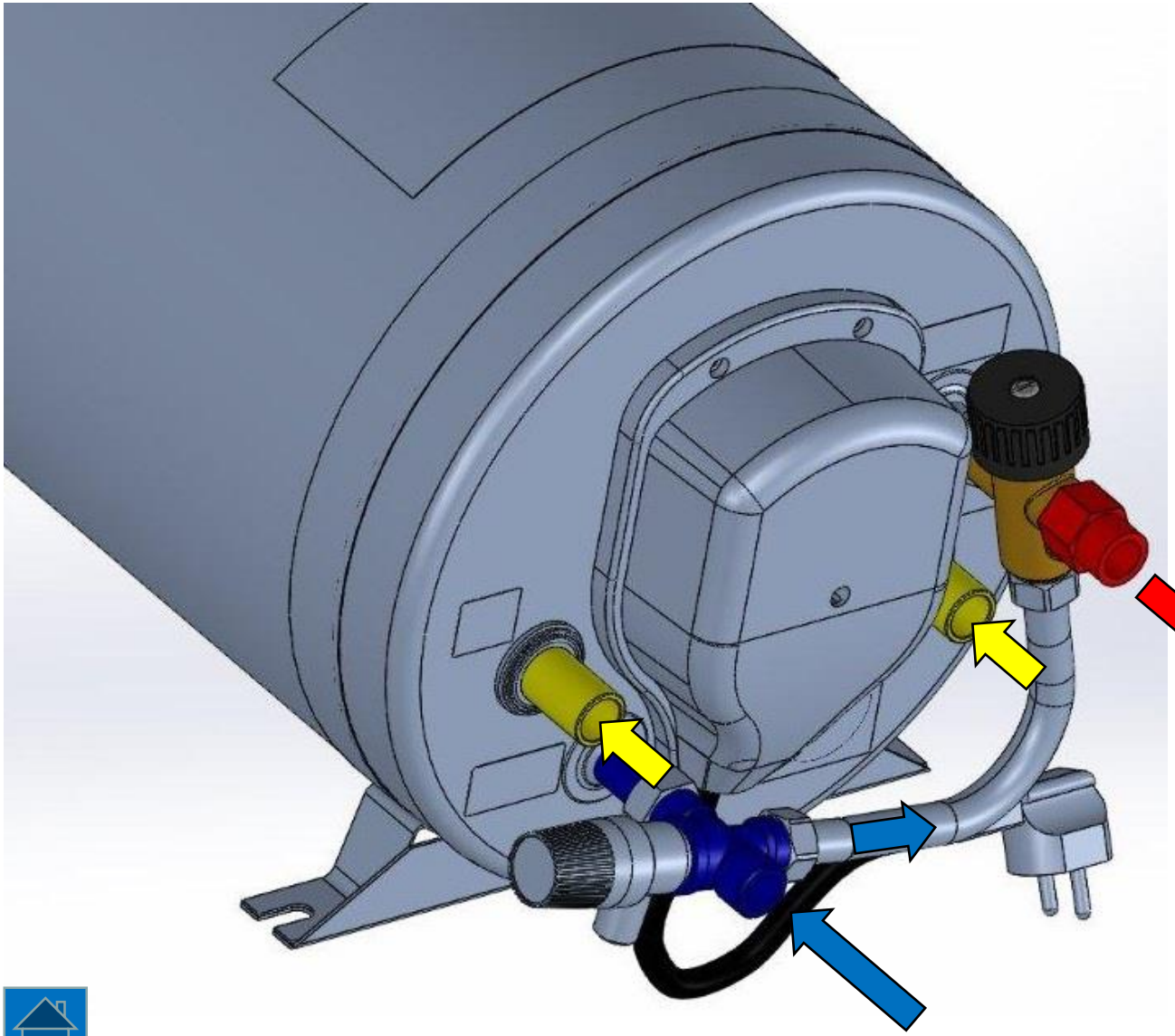
Due to the power required to heat the water up the heating element works only with 230V/750W
A 115V/750W heating element is available on demand.

On some models it’s possible to install more powerful heating elements.

In a standard horizontal installation the heating element is bent so it can heat the water in lowest section of the water-heater.

In a vertical installation the heating element is completely submerged in water so the warmest water goes to the top of the heater.

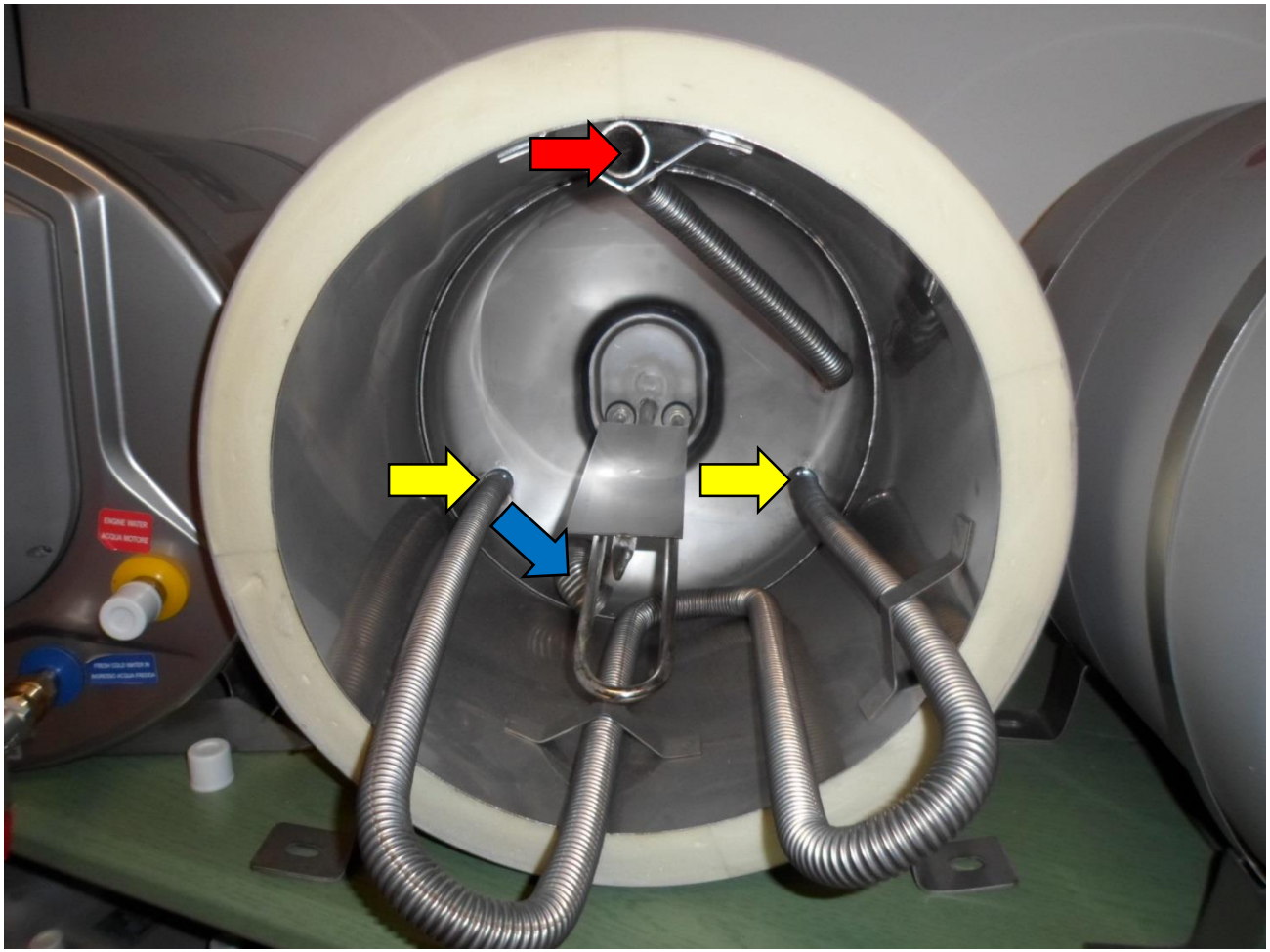
The heat exchange coil is installed on the bottom of the tank in order to better exchange heat.



Fresh water inlet

Warm water outlet

Heat exchange coil



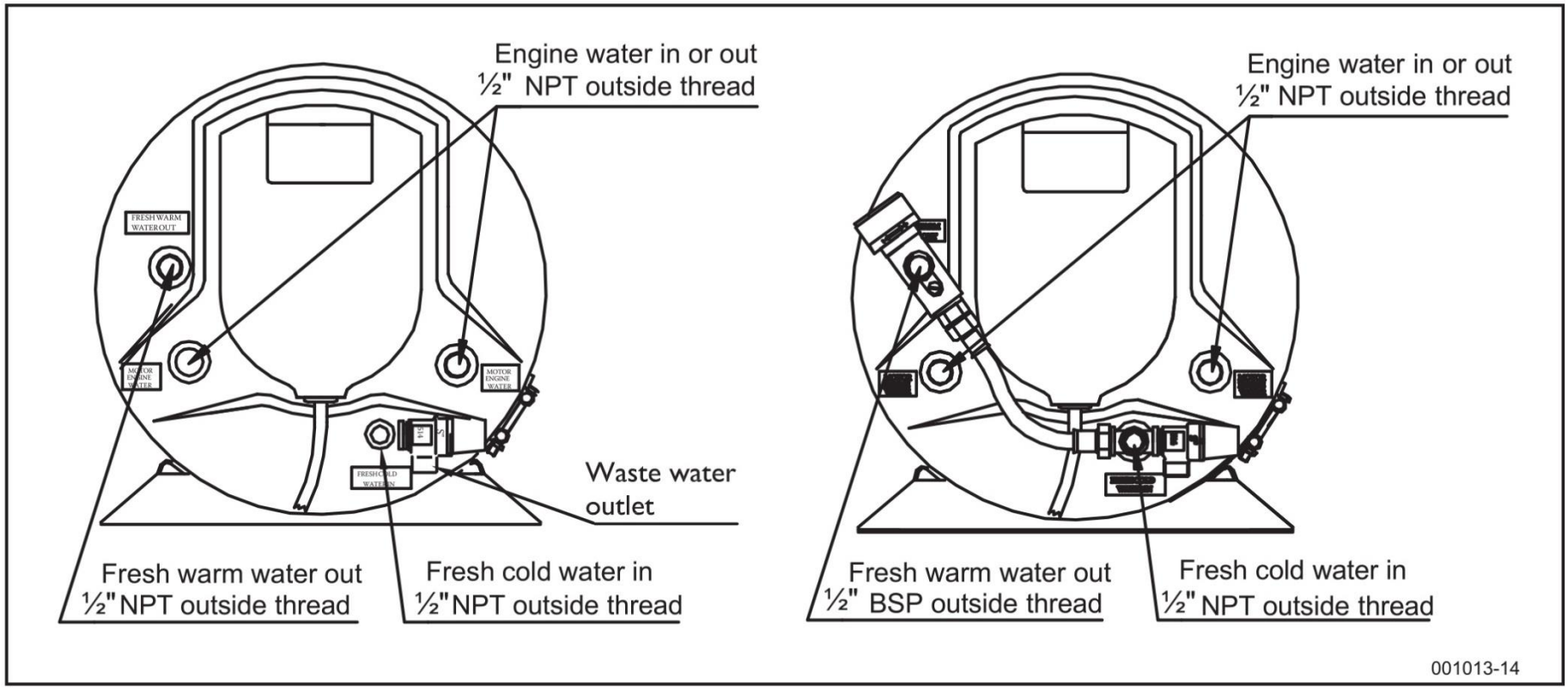
Fresh water inlet

Warm water outlet

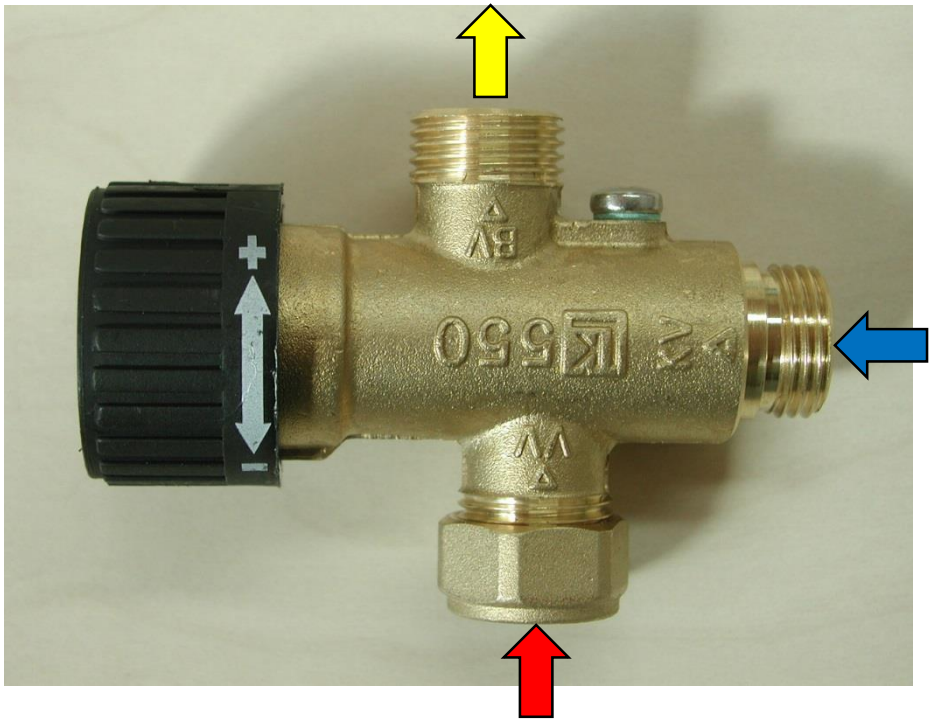
Heat exchange coil

The warm water pipe is positioned so that, whether the installation is horizontal or vertical , the water is always tapped from the warmest spot

General functioning



NPT = National Pipe Thread
BSP = British Standard Pipe
The difference between NPT and BSP is that they have the same thread but while NPT is tapered BSP is not



Fresh water inlet

Warm water outlet

Mixed water outlet

The mixing valve allows to regulate the temperature of the water exiting the heater.
When the mixing valve is completely closed the water temperature is +75°C (167°F).
When the mixing valve is completely opened the water temperature is +38°C (100°F)

- Model for **Basic & Slim**: **7 bar** pressure relief valve
- Model **SPA**: **6 bar** pressure relief valve

The pressure relief valve has a double purpose:

- Opens up when the pressure inside the heater is higher than the valve set pressure
- Allows the emptying of the heater when needed rapidly

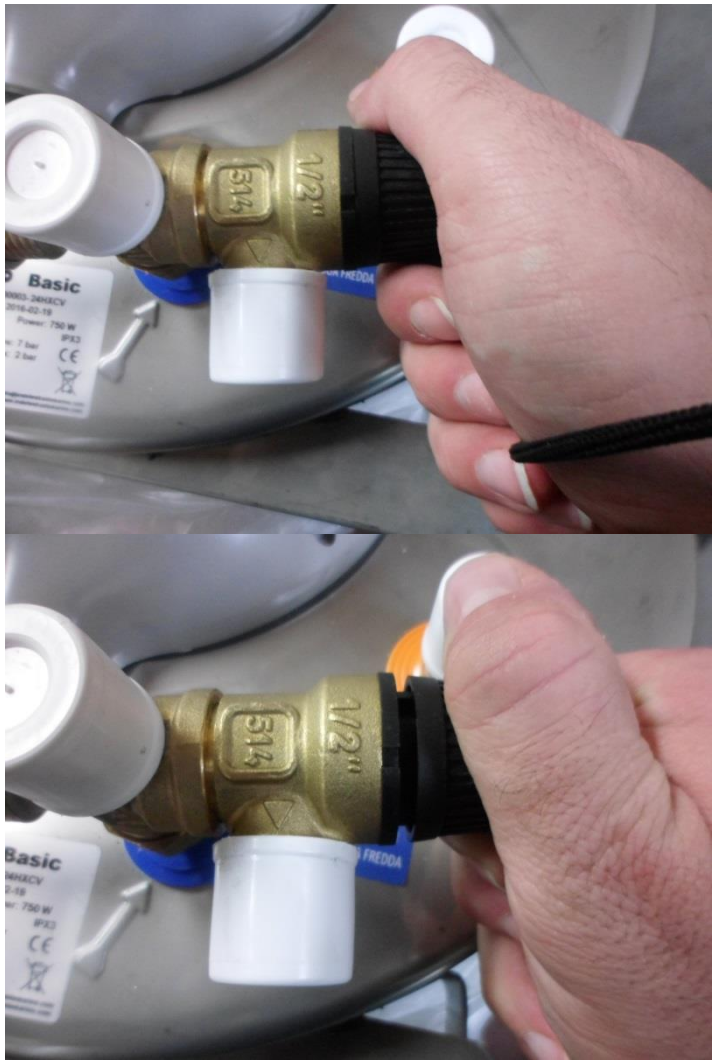
Attention: During the normal operation it's ok to have some water dripping from the valve (half a glass per heating cycle) as the pressure inside the heater grows slighlty higher than the set pressure of the valve.

Model **SPA** ending with 100: **6 bar** pressure relief valve

The pressure relief valve has a double purpose:

- Opens up when the pressure inside the heater is higher than the valve set pressure
- Allows the emptying of the heater when needed rapidly

Attention: During the normal operation it's ok to have some water dripping from the valve (half a glass per heating cycle) as the pressure inside the heater grows slighlty higher than the set pressure of the valve.

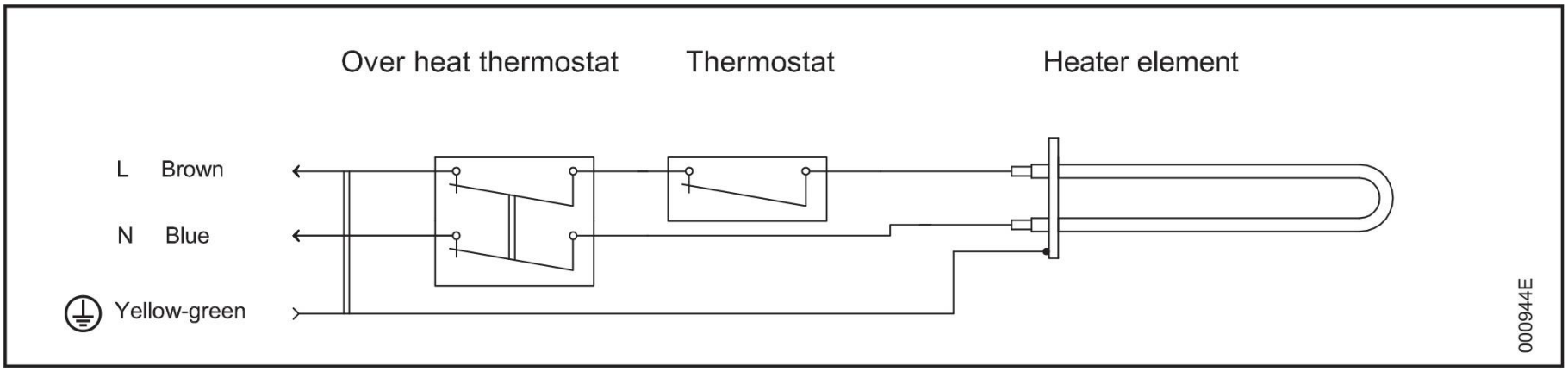


To open the pressure relief valve turn it counter-clockwise.
To close the valve either keep turning it counter-clockwise or clockwise

To open the pressure relief valve just lift the lever

Wiring diagram

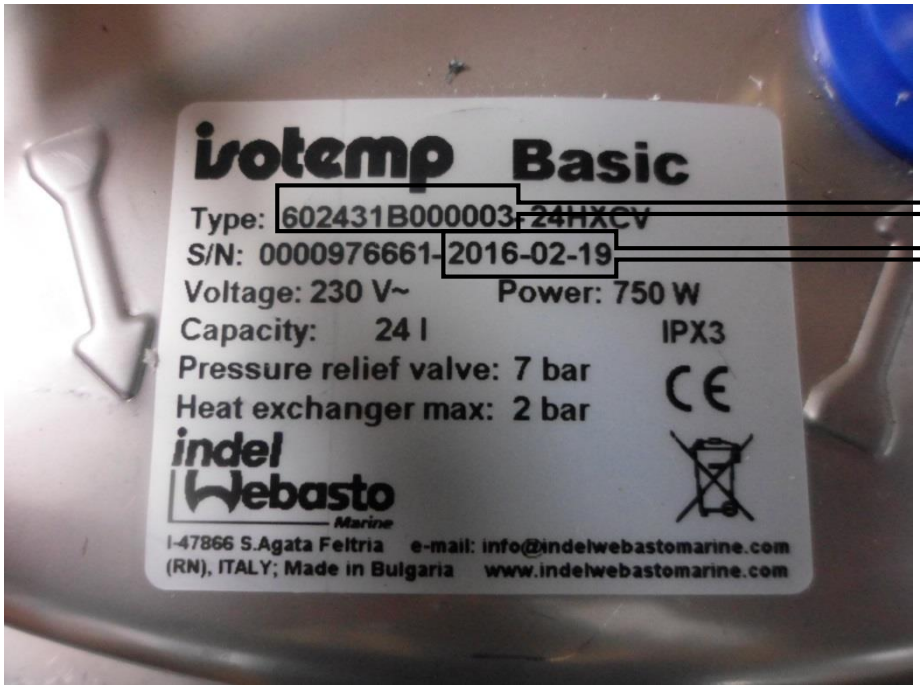
Wiring diagram



This wiring diagram is identical for every Isotemp water-heater

How to identify a water-heater

How to identify a water-heater



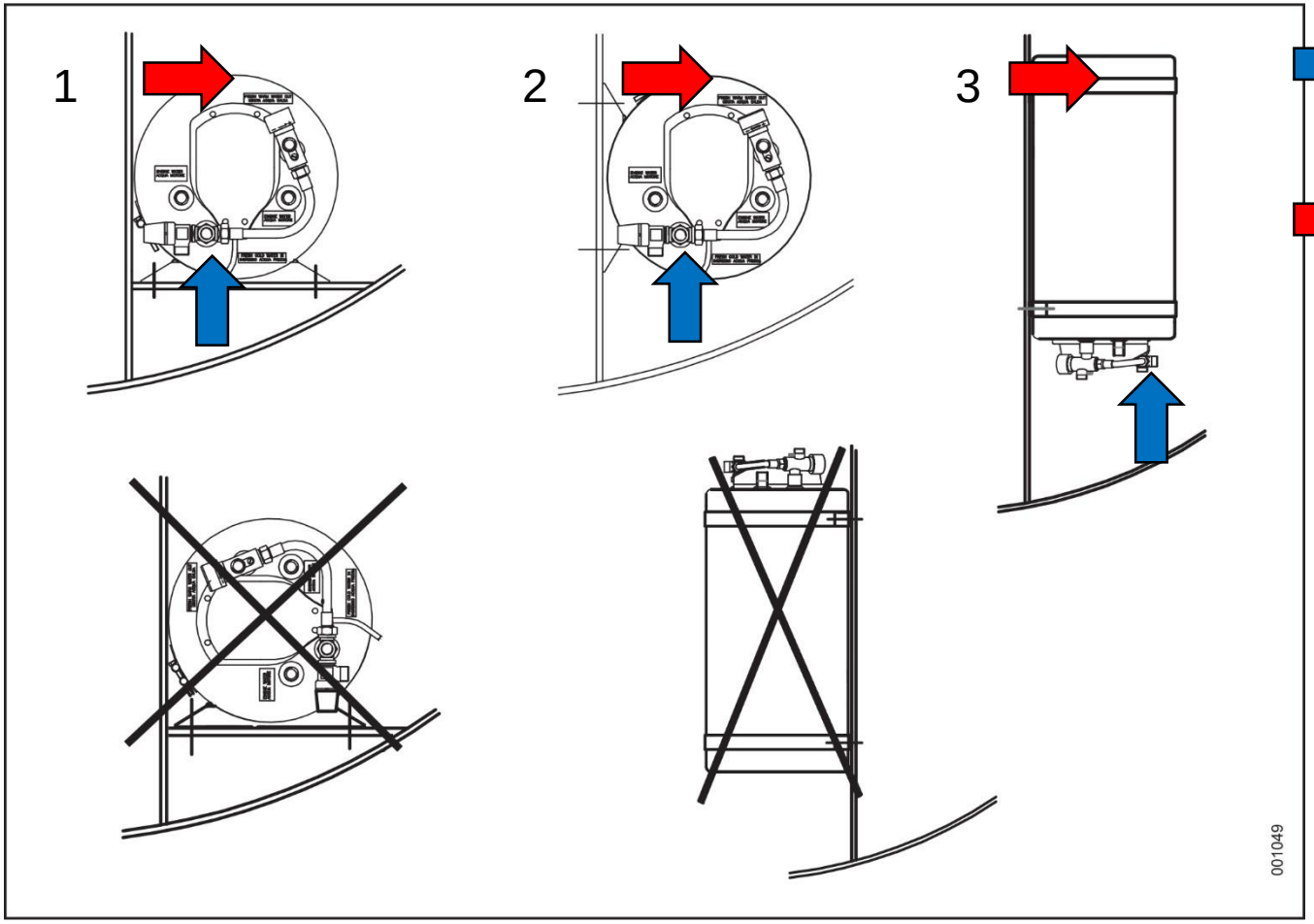
Product part number

Date of production

On the front stikcer there is all the data of the heater. The two most important data are highlighted

Installation, general tips

Installation, general tips



Fresh water inlet

Warmest spot where water is taken from

The Isotemp water-heater can be installed both horizontally or vertically (figures 1 and 3) and in every position in between as long as the fresh water inlet is always at the bottom.

It is advisable during installation to mount a hose on the pressure relief valve.
During the heating cycle it's possible to lose up to a half glass of water.

Emptying the water-heater is a lot easier too.

Also on the SPA model ending with 100 it's advisable to install a hose on the pressure relief valve.

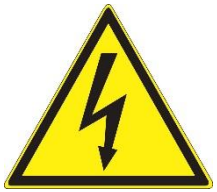
LK valve

Valve on SPA models ending with 100

There are two kinds of valves on Isote,p water-heaters. The LK valve is standard on all water-heaters while the other type of valve is installed only on SPA water-heaters with part number ending with 100.

Both valves work exactly in the same way but there is a difference:
The LK valve allows a faster emptying but does not work as a one-way valve.
Attention: in this instance it's advisable to install a one-way valve right before water inlet, especially if the water-heater is installed closed to the autoclave.

The valve installed on the SPA model ending with 100 is slower in emptying the water-heater but works as a non-return valve.



Remove the plug before following the instruction

How to verify the Ohms on the heating element 750W

The fastest way to run this test is to use the plug

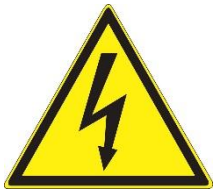
Heating element values 750W

Ohm value on heating element 230V 750W

Ohm value on heating element 115V 750W

Infinite resistor

How to replace the heating element



Remove the plug before following the instruction

How to verify the Ohms on the heating element 1200W

The fastest way to run this test is to use the plug

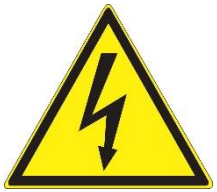
Resistor values 1200W

Ohm value on heating element 230V 1200W

Ohm value on heating element 115V 1200W

Infinite resistor

How to replace the heating element



Remove the plug before following the instruction

How to verify the Ohms on the heating element 2000W

The fastest way to run this test is to use the plug

Resistor values 2000W

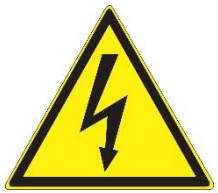
Ohm value on heating element 230V 2000W

The version 115V 2000W is not available

Infinite resistor

How to replace the heating element

How to replace the heating element



Remove the plug before following the instruction

How to empty the water-heater

How to replace the heating element

Spare part number heating element
230V 750W: **SEE00019LA**
Dimensions: 33,4*6,8*2,6 cm
Weight: 230 grahams

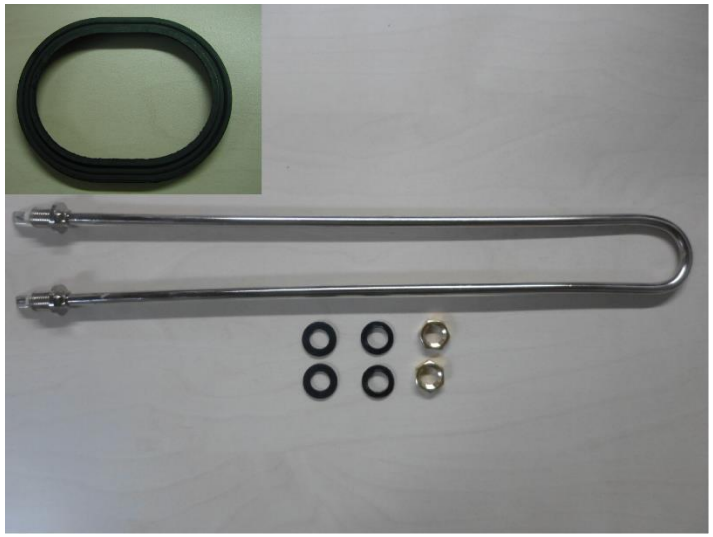
Spare part number heating element
115V 750W: **SEE00014HA**
Dimensions: 33,4*6,8*2,6 cm
Weight: 230 grahams

How to replace the heating element

Spare part number heating element
230V 1200W: **SEE00015LA**
Dimensions: 42*6,3*3,6cm
Weight: 262 grahams

Spare part number heating element
115V 1200W: **SEE00023HA**
Dimensions: 42*6,3*3,6cm
Weight: 262 grahams

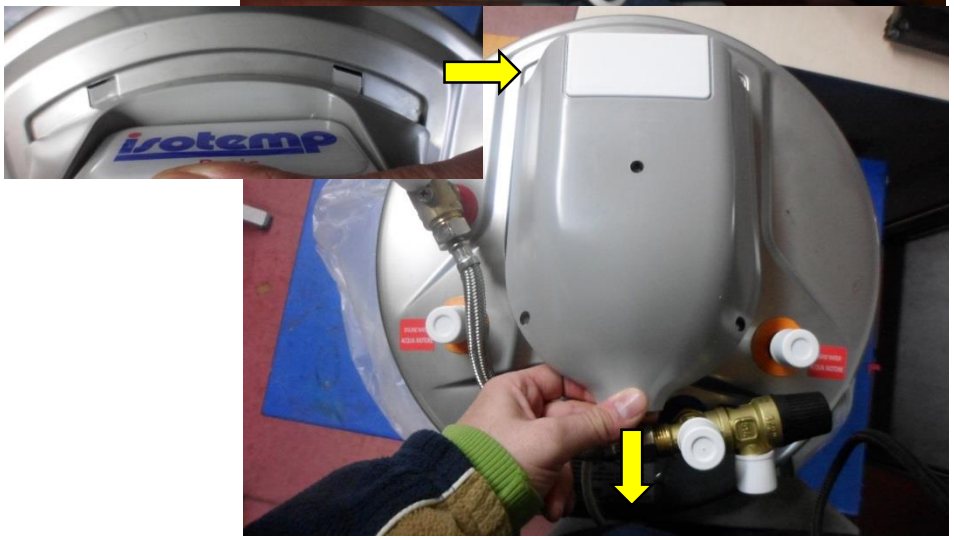
How to replace the heating element



Spare part number heating element 230V 2000W: **SEE00016LA**
Dimensions: 47*6,3*3,6cm
Weight: 285 grahams

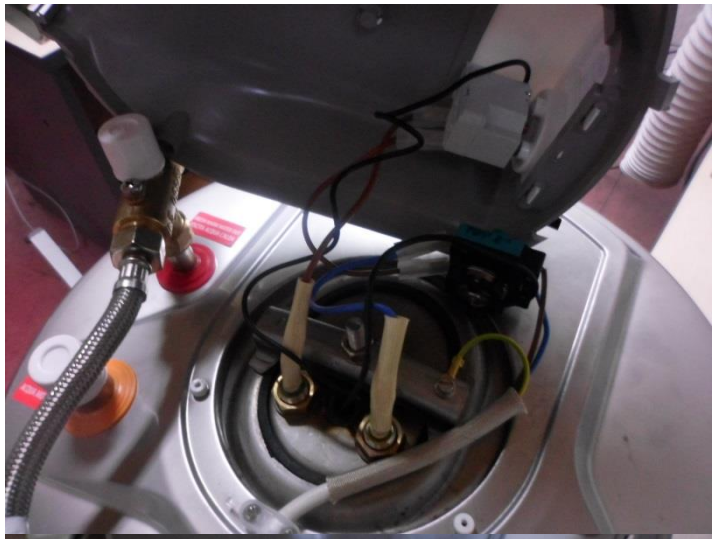
How to replace the heating element

Remove the fixing screws of the cover

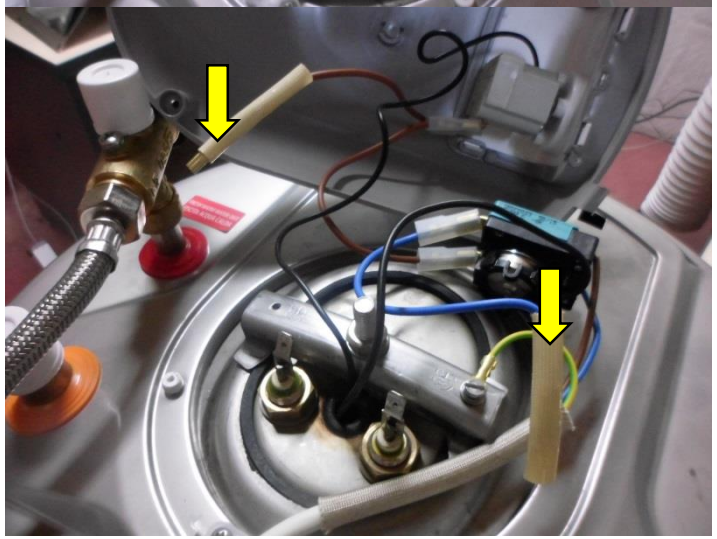


Pull the cover out paying attention to the plastic inserts on the back

How to replace the heating element

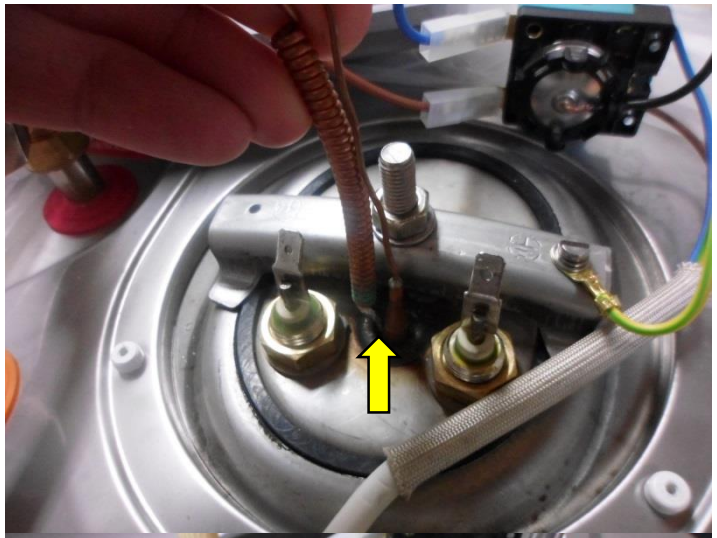


Lift the cover

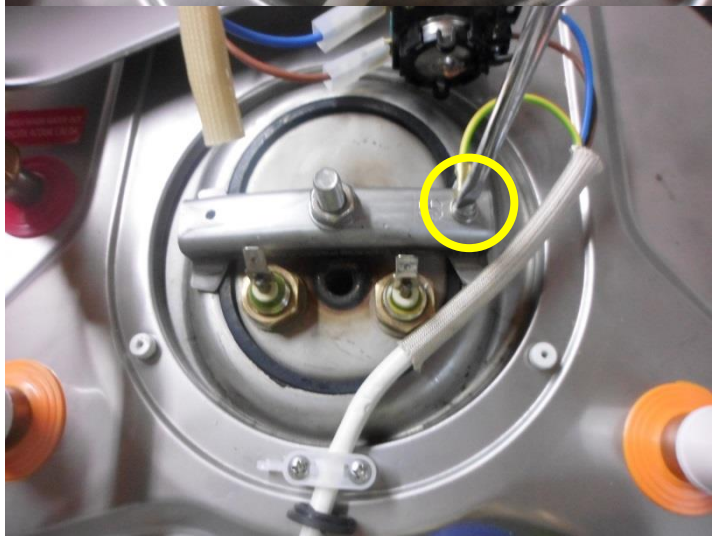


Remove the connections on the heating element

How to replace the heating element



Remove the thermostat probes

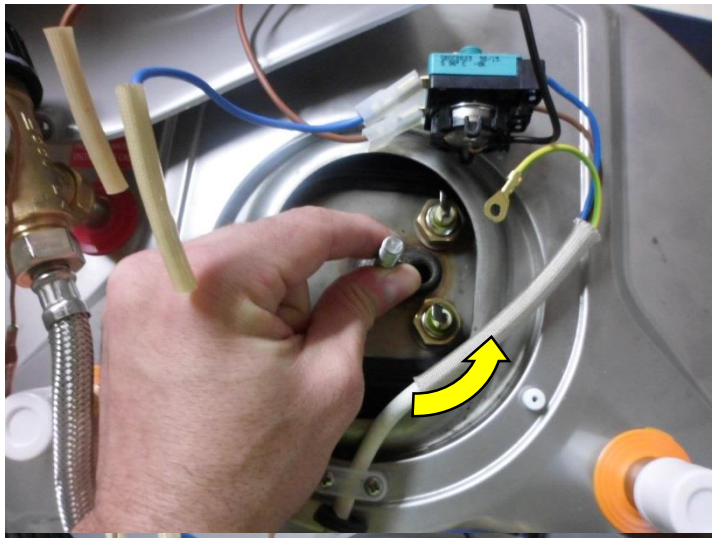


Remove the ground cable

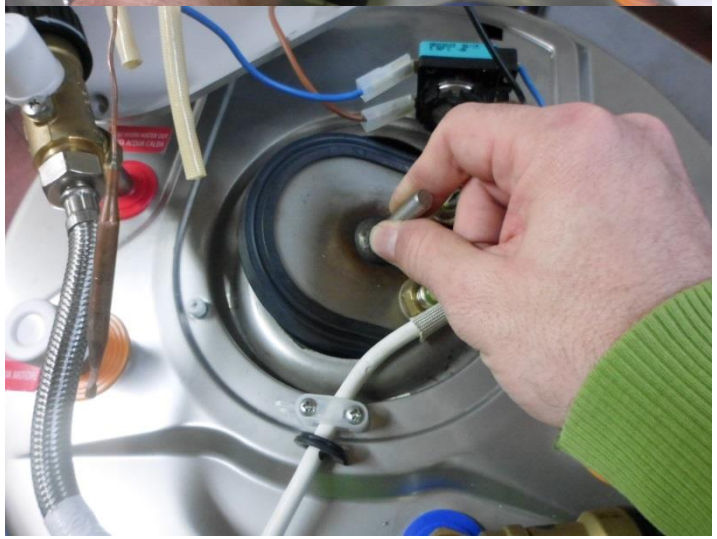
How to replace the heating element

With a wrench pipe #14 remove the nut

Now it’s time to remove the bracket

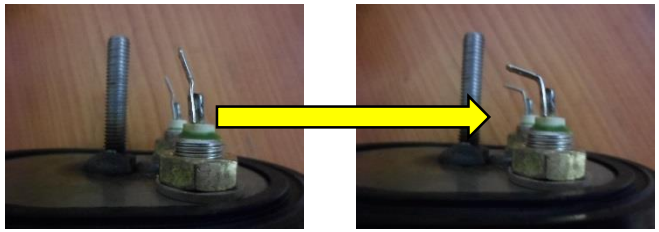


Rotate the bracket by 90° counter-clockwise



Remove the side opposite to the heating element first

Attention: on Slim models bend the connections of the heating element a bit in order to remove the bracket



How to replace the heating element

Remove the nuts holding the heating element

Remove the heating element

Remove the gaskets

Reinsert the gaskets on the new heating element

Attention: there are two kinds of gaskets, 2 rigid gaskets and 2 soft ones. **The soft gaskets must be inserted first** and will remain inside the heater

Insert the heating element on the bracket

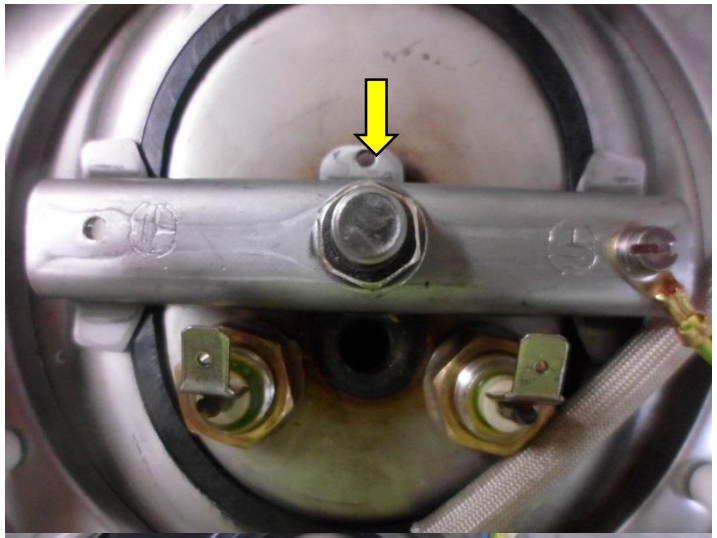
Insert then the hard gaskets and the nuts above them

How to replace the heating element

The correct position of the heating element is slightly bent, this to allow the heating element to heat the water in the lowest part of the water-heater

Attention: when reinstalling the brakcet it's very important to have it well placed in the center, make sure the gasket is evenly set

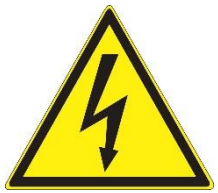
How to replace the heating element



When reinstalling the bridge pay attention to the positioning, the part indicated by the arrow must be as in the picture or the hole for the thermostat probes will be covered.
Reconnect the ground cable and the power supply connections.
When tightening the nut never use more than a 8-10N force

Attention: when inserting the thermostat probes it's important to insert them in the correct order: cylindircal first and coil after

How to replace the gaskets



Remove the plug before following the instruction

How to empty the water-heater

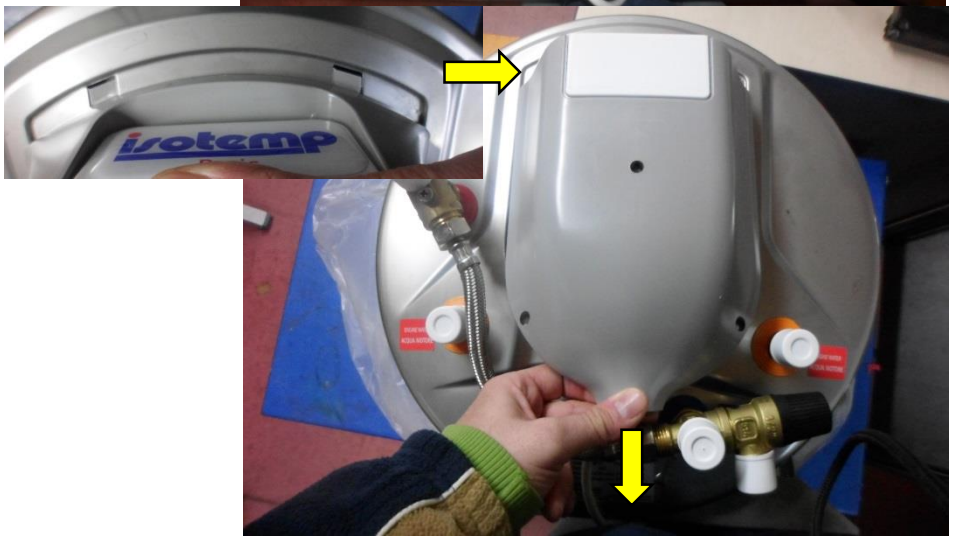
The gasket kit is made by:

- 1 large gasket
- 2 small soft gaskets
- 2 small rigid gaskets
- 2 fixing nuts

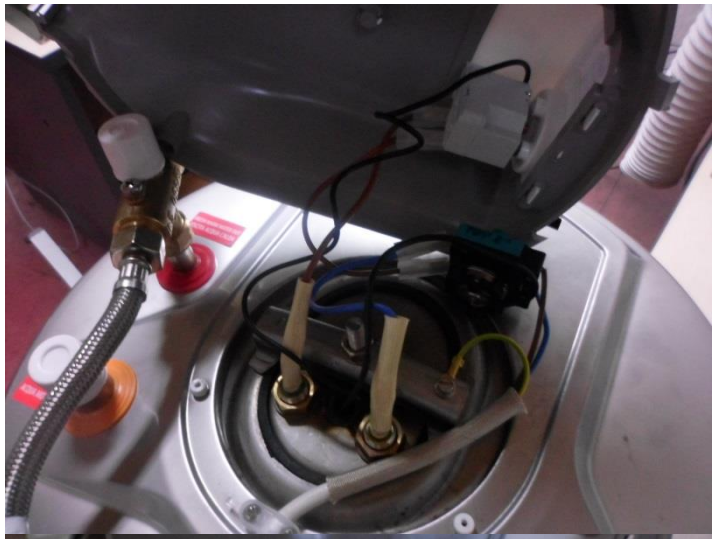
Spare part number: **SDF00025AA**
Dimensions:
Weight:

How to replace the gaskets

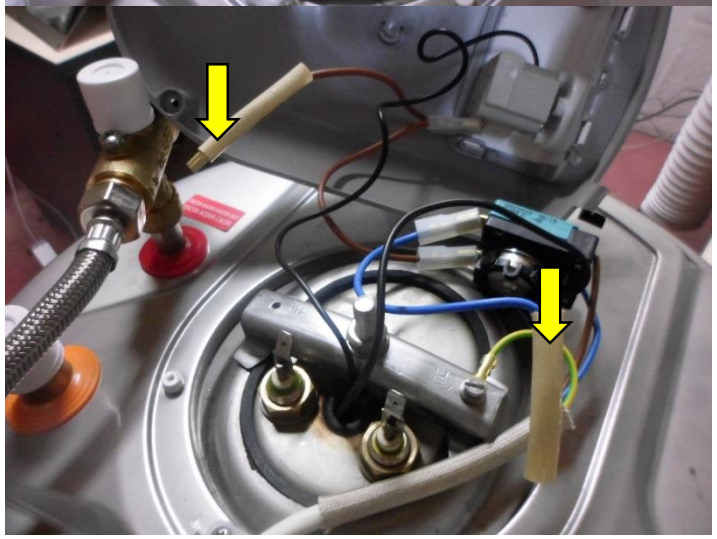
Remove the fixing screws of the cover



Pull the cover out paying attention to the plastic inserts on the back

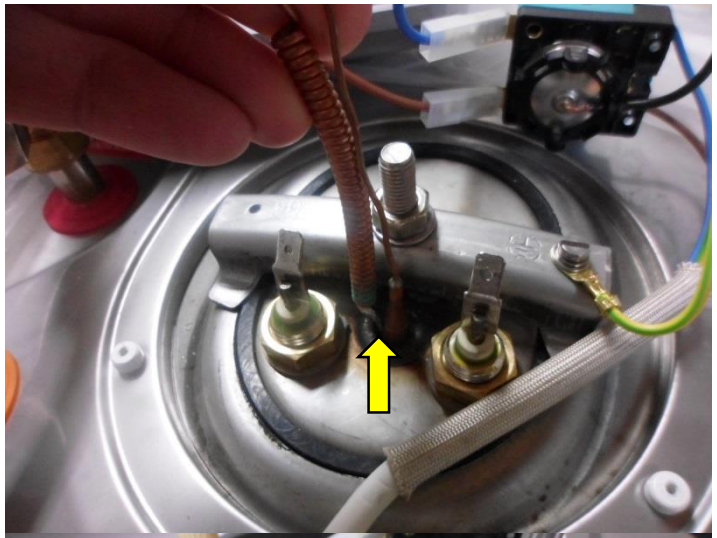


Lift the cover

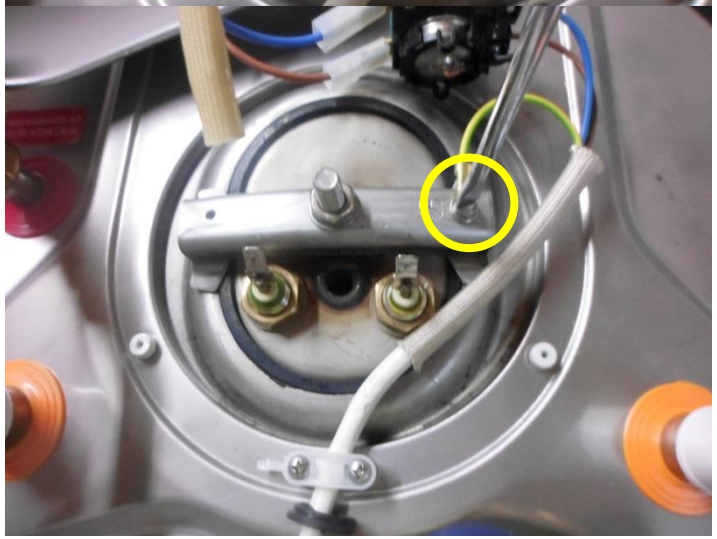


Remove the connections on the heating element

How to replace the gaskets



Remove the thermostat probes

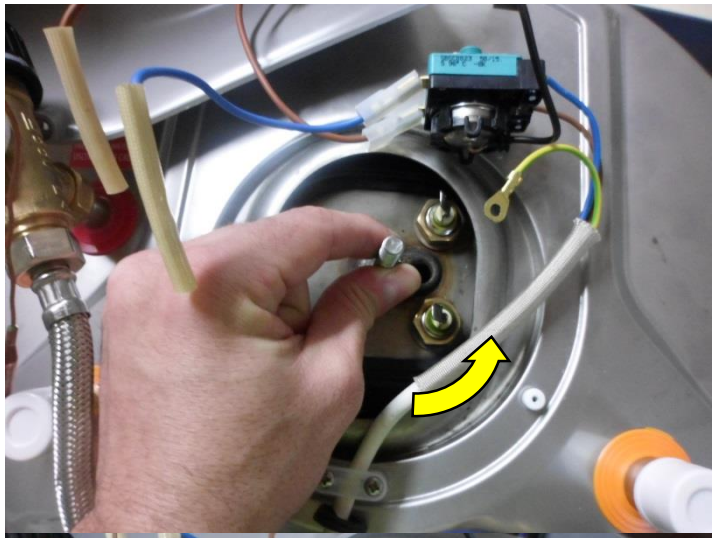


Remove the ground cable

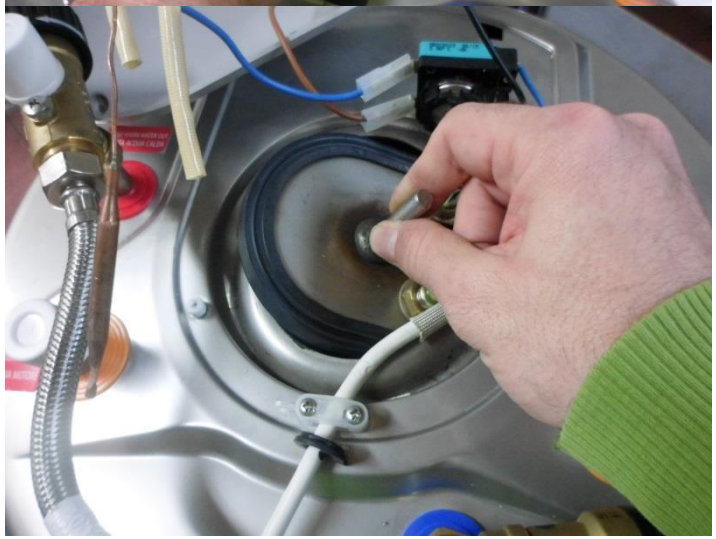
How to replace the gaskets

With a wrench pipe #14 remove the nut

Now it’s time to remove the bracket

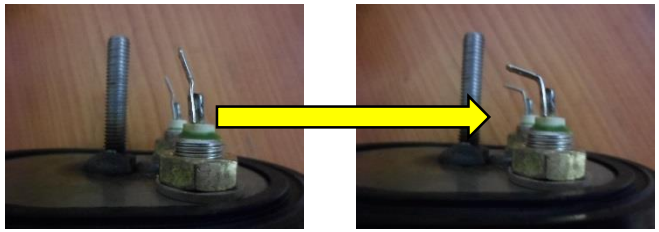


Rotate the bracket by 90° counter-clockwise

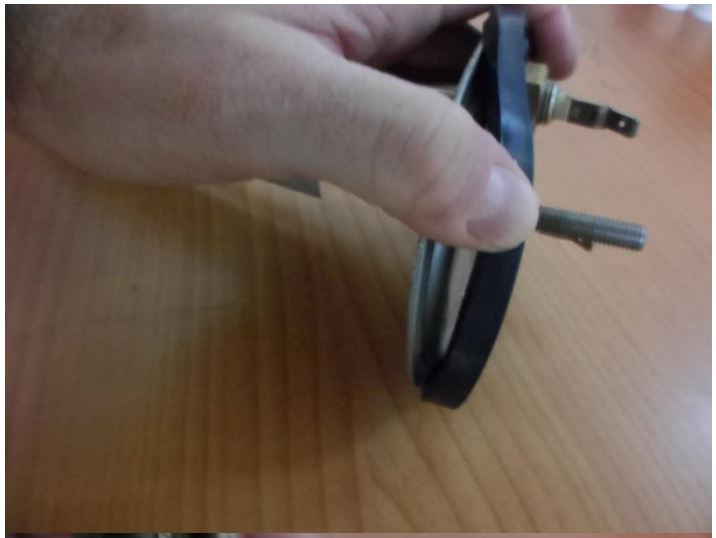


Remove the side opposite to the heating element first

Attention: on Slim models bend the connections of the heating element a bit in order to remove the bracket



How to replace the gaskets



Remove the large gasket by pulling up

Replace the gasket, making sure it's well fitted to the bracket

Remove the nuts holding the heating element

Remove the heating element

How to replace the gaskets

Remove the gaskets

Reinsert the gaskets on the new heating element

Attention: there are two kinds of gaskets, 2 rigid gaskets and 2 soft ones. **The soft gaskets must be inserted first** and will remain inside the heater

How to replace the gaskets

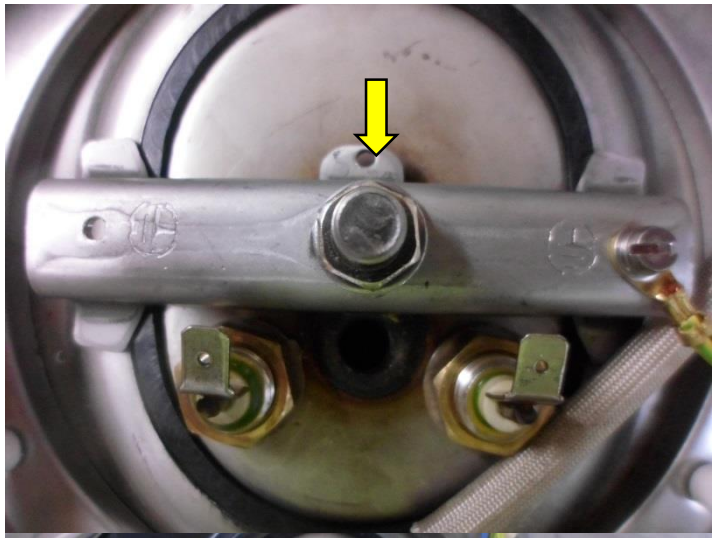
Insert the heating element on the bracket

Insert then the hard gaskets and the nuts above them

How to replace the gaskets

The correct position of the heating element is slightly bent, this to allow the heating element to heat the water in the lowest part of the water-heater

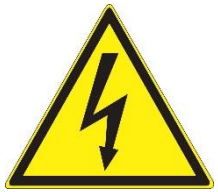
Attention: when reinstalling the brakcet it's very important to have it well placed in the center, make sure the gasket is evenly set



When reinstalling the bridge pay attention to the positioning, the part indicated by the arrow must be as in the picture or the hole for the thermostat probes will be covered.
Reconnect the ground cable and the power supply connections.
When tightening the nut never use more than a 8-10N force

Attention: when inserting the thermostat probes it's important to insert them in the correct order: cylindircal first and coil after

How to replace the thermostats



Remove the plug before following the instruction

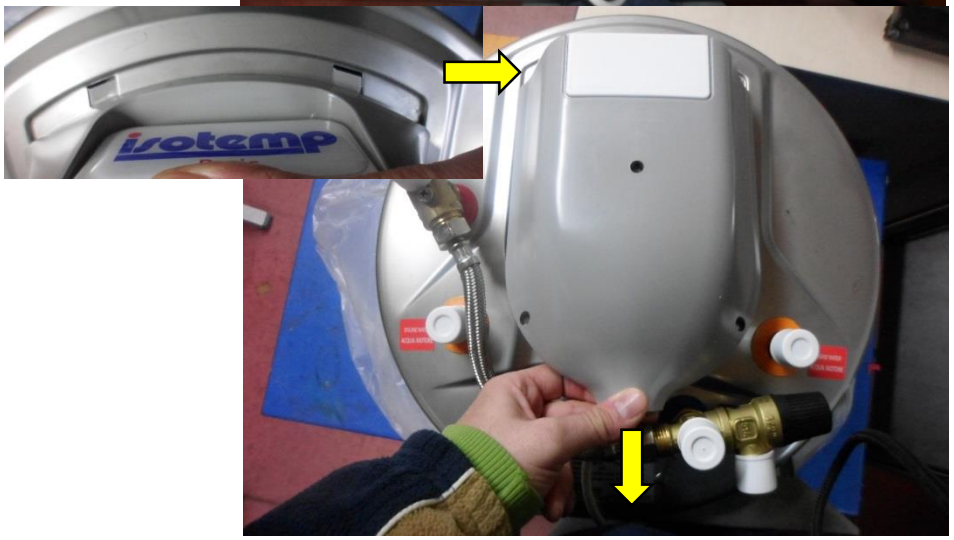
How to replace the thermostats

Spare part number service thermostat: **SEA00041LA**
Working temperature: 0°C/+75°C (32°F/167°F)
Dimensions:
Weight:

Spare part number thermal cut-off thermostat: **SEA00042LA**
Opening circuit temperature: +95°C (203°F)
Dimensions:
Weight:

How to replace the thermostats

Remove the fixing screws of the cover



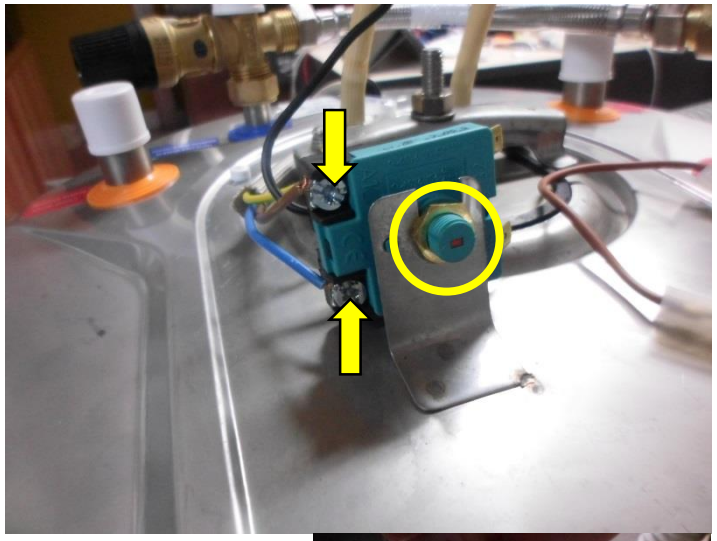
Pull the cover out paying attention to the plastic inserts on the back

How to replace the thermostats

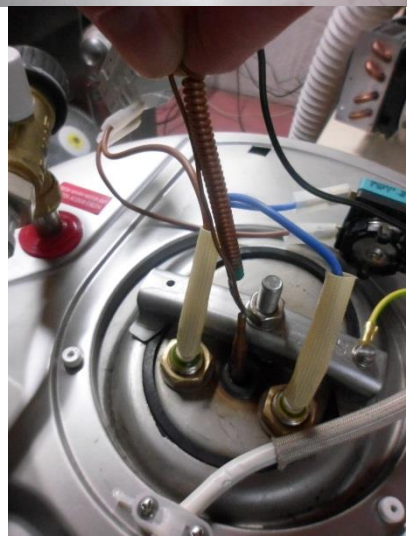
Remove the sticker on the plastic cover

Lose the marked screws to remove the service thermostat

How to replace the thermostats

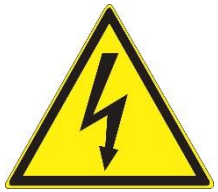


Lose the screws to remove the power supply cables and lose the nut to remove the thermostat



Attention: when inserting the thermostat probes it's important to insert them in the correct order: cylindircal first and coil after

How to replace the heating element bracket



Remove the plug before following the instruction

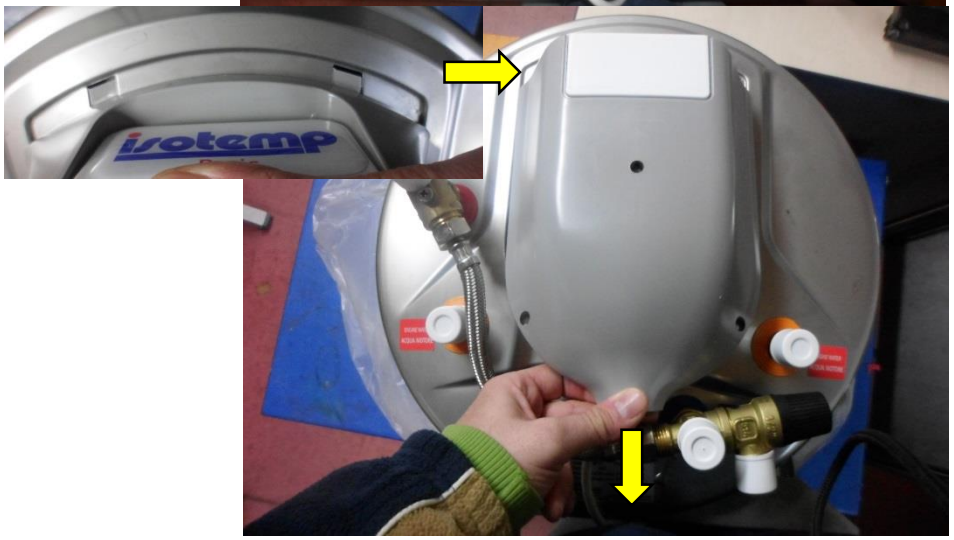
How to empty the water-heater

How to replace the heating element bracket

Spare part number: **SBE00045AA**
Dimensions:
Weight:

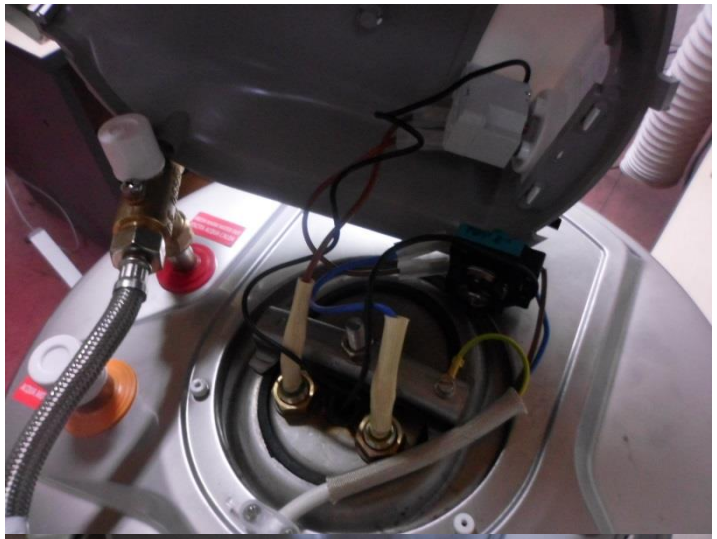
How to replace the heating element bracket

Remove the fixing screws of the cover

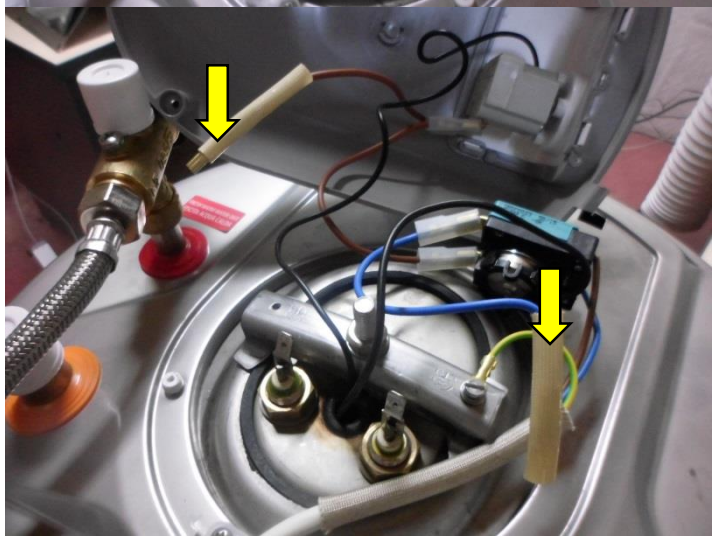


Pull the cover out paying attention to the plastic inserts on the back

How to replace the heating element bracket

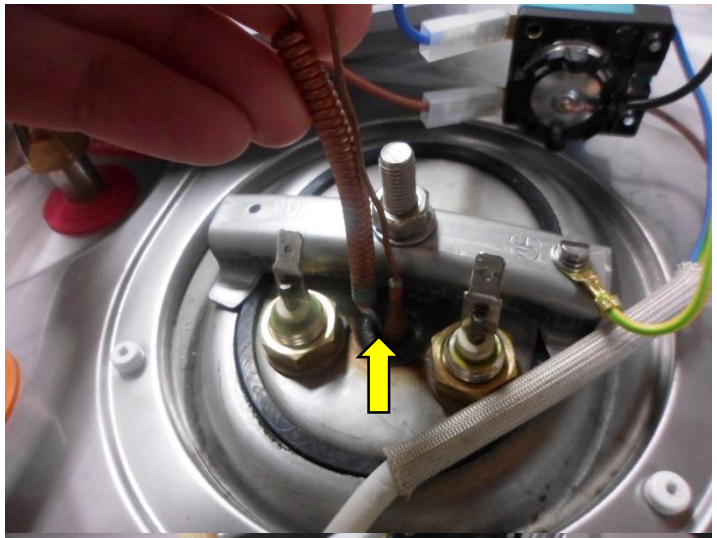


Lift the cover

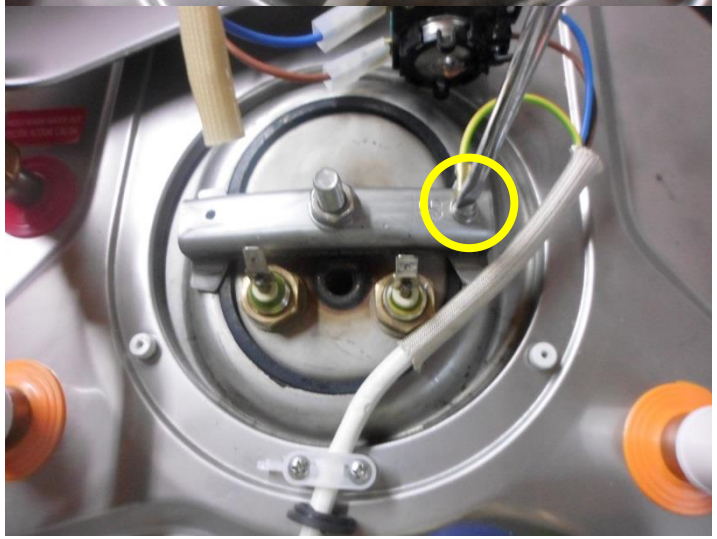


Remove the connections on the heating element

How to replace the heating element bracket



Remove the thermostat probes



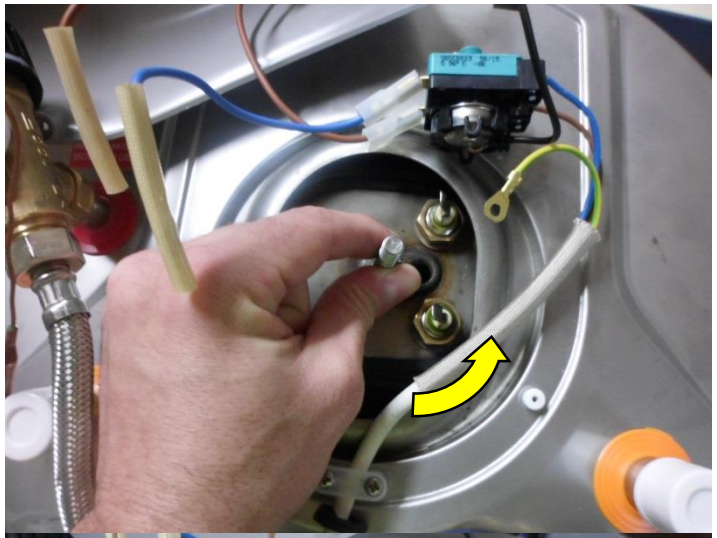
Remove the ground cable

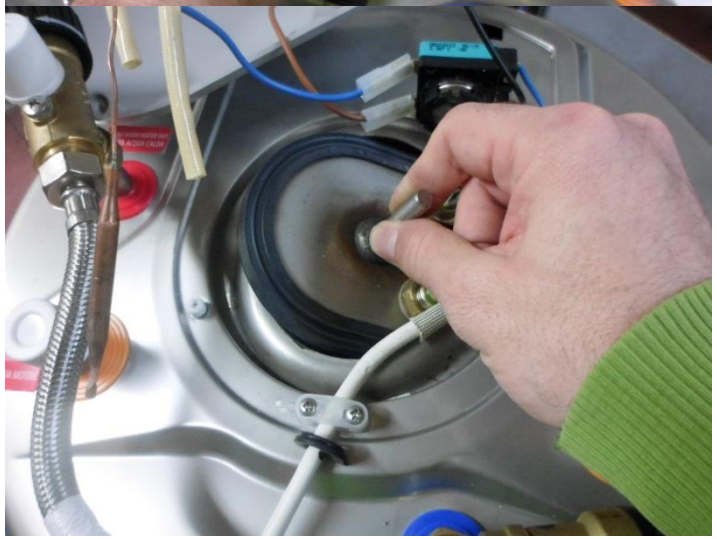
How to replace the heating element bracket

With a wrench pipe #14 remove the nut

Now it’s time to remove the bracket

How to replace the heating element bracket

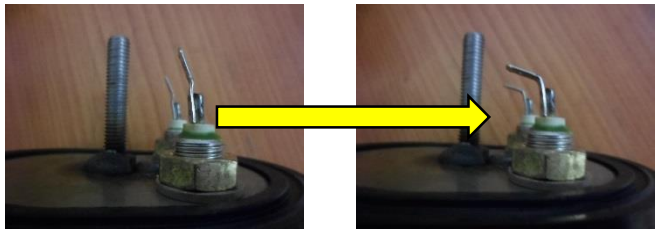




Rotate the bracket by 90° counter-clockwise

Remove the side opposite to the heating element first

Attention: on Slim models bend the connections of the heating element a bit in order to remove the bracket

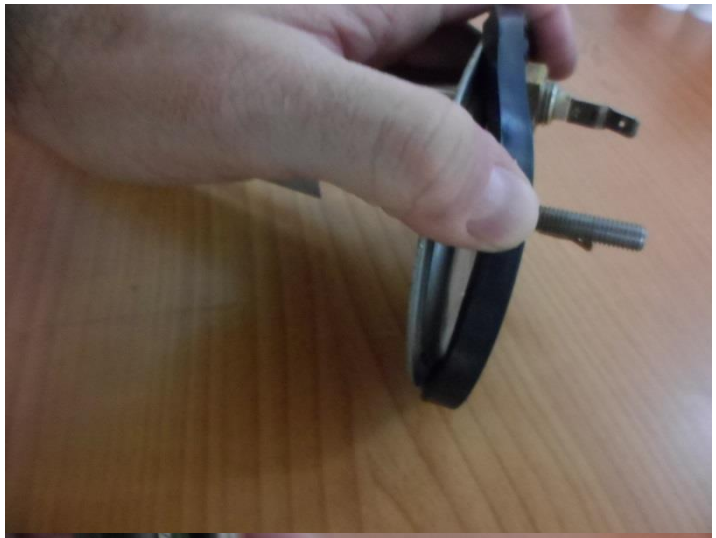


How to replace the heating element bracket

Remove the nuts holding the heating element

Remove the heating element

How to replace the heating element bracket



Remove the large gasket by pulling up

Replace the gasket, making sure it's well fitted to the bracket

How to replace the heating element bracket

Insert the heating element on the bracket

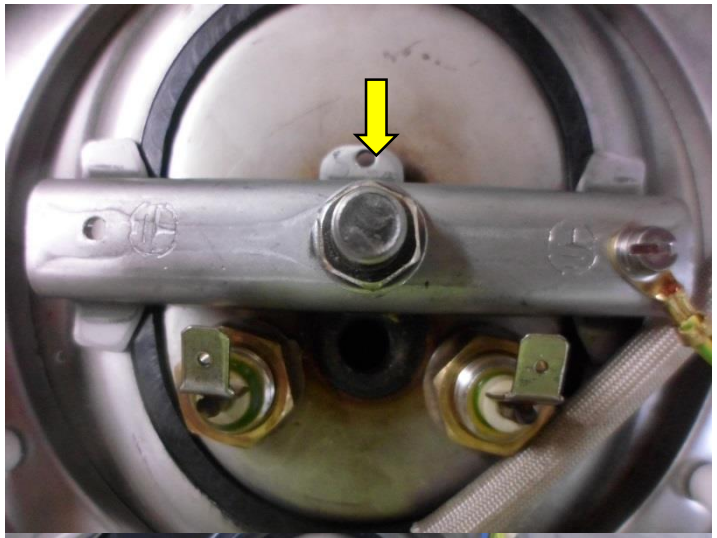
Insert then the hard gaskets and the nuts above them

How to replace the heating element bracket

The correct position of the heating element is slightly bent, this to allow the heating element to heat the water in the lowest part of the water-heater

Attention: when reinstalling the brakcet it's very important to have it well placed in the center, make sure the gasket is evenly set

How to replace the heating element bracket



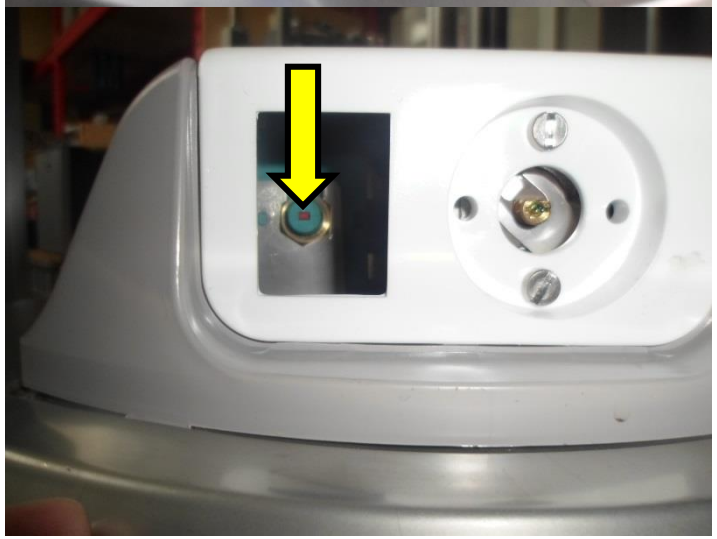
When reinstalling the bridge pay attention to the positioning, the part indicated by the arrow must be as in the picture or the hole for the thermostat probes will be covered.
Reconnect the ground cable and the power supply connections.
When tightening the nut never use more than a 8-10N force

Attention: when inserting the thermostat probes it's important to insert them in the correct order: cylindircal first and coil after

How to reset the thermal cut-off thermostat

In case the heater is either a Slim or s SPA it’s always necessary to remove the plastic cover

How to reset the thermal cut-off thermostat



You can follow this instruction if there is enough room to reset the thermostat without having to remove the plastic cover.
This depends entirely on the installation of the heater.
Remove the sticker on the pastic cover to get access to the thermostat

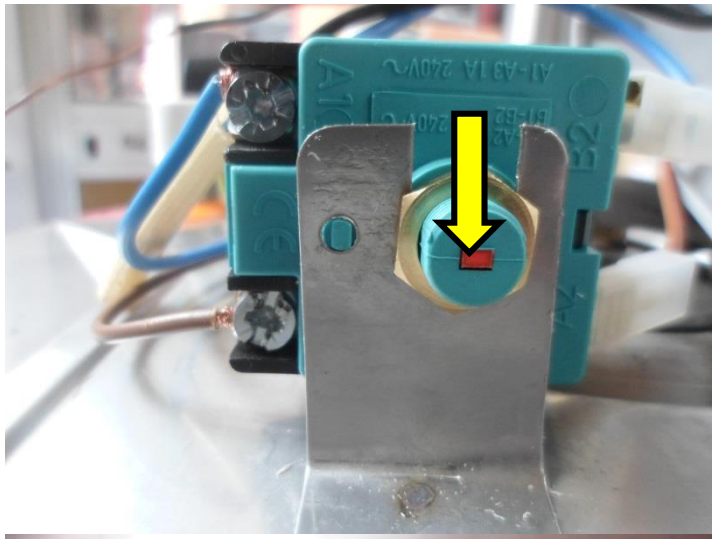
With a screwdriver reset the button marked by the arrow

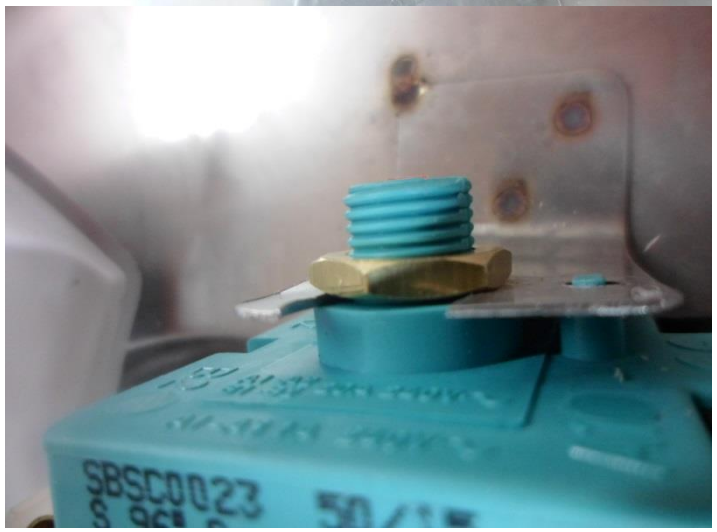
How to reset the thermal cut-off thermostat

Remove the fixing screws of the cover

Pull the cover out paying attention to the plastic inserts on the back

How to reset the thermal cut-off thermostat





Below the plastic cover there is the thermal cut-off thermostat that may have triggered. Resetting the thermostat is a manual operation.
The thermal cut-off thermostat opens the circuit when the temperature of the water gets to a temperature of **+95°C** (203°F)

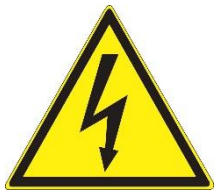
To reset the thermostat make sure the red button is flush to the head of the thermostat, just like in the picture.
If the button is proud of the head just push it

How to reset the thermal cut-off thermostat

There are two scenarios in which the thermal cut-off thermostat triggers:

- Water has been heated up with the heat exchange coil; the temperature of th liquid is over +95°C (203°F) so the thermostat triggers. In this case reset manually the thermostat
- Water is heated up with the heating element. The thermal cut-off thermostat triggers because the service thermostat is defective and doesn't open the circuit when the water temperature gets to +75°C (167°F). In this case it's necessary to replace the service thermostat

How to replace the mixing valve



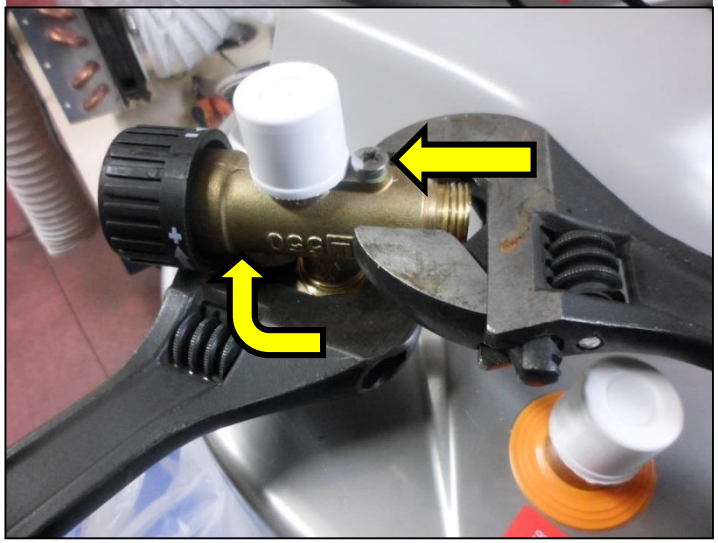
Remove the plug before following the instruction

How to empty the water-heater

How to replace the mixing valve

Spare part number: **SFD00011AA**
Dimensions:
Weight:

How to replace the mixing valve



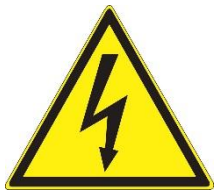
Lose the fresh water pipe

With a wrench keep the valve still and lose the lower nut

Attention: when replacing the mixing valve tight the lower nut as much as possible

Attention: the air screw must be facing upward

How to replace the pressure relief valve



Remove the plug before following the instruction

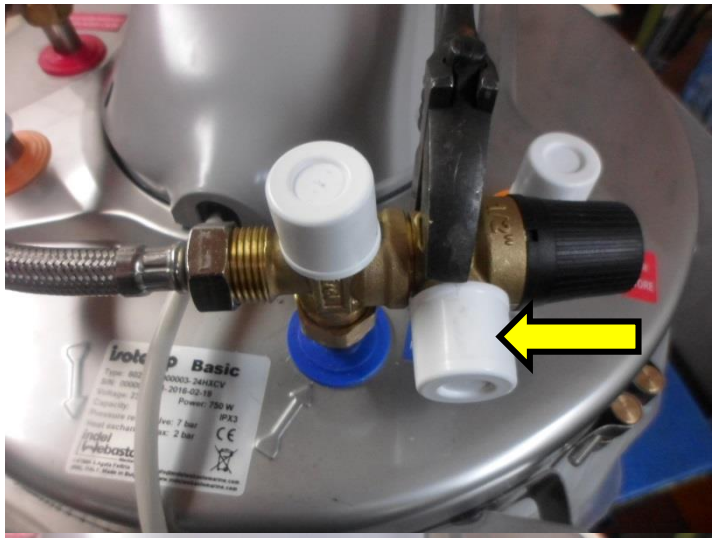
How to empty the water-heater

How to replace the pressure relief valve

Spare part number 7 bar pressure relief valve: **SFD00023AA**
Dimensions:
Weight: 112 grahams

Spare part number 6 bar pressure relief valve (SPA models): **SFD00029AA**
Dimensions:
Weight: 112 grahams

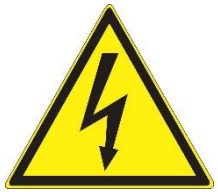
Sostituire la valvola di sicurezza



With the wrench lose the valve turnig it counter-clockwise

Attention: when replacing the valve make sure the water outlet is facing downward

How to fill the water-heater



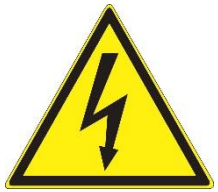
Remove the plug before following the instruction

How to fill the water-heater

Open a random hot water tap on the boat

Turn the autoclave on.
In this way all the system will fill up. All the air inside the system will be pushed out.
Once water is getting out of the tap it means all the system is filled with water only and there are no air bubbles

How to empty the water-heater



Remove the plug before following the instruction

How to empty the water-heater

Attention: **turn the autoclave off before following this instruction.**

Open the pressure relief valve

Open a random hot water tap on the boat.
In this way all the water inside the water-heater will get out through the pressure relief valve and you can proceed with any maintenance needed.

This process is mandatory when winterizing the water-heater

How to replace the installation brackets

How to replace the installation brackets

Spare part number installation brackets kit for Basic 24-30-40-50-75 (2 pieces):
SGB00047AA
Dimensions:
Weight:

Spare part number installation brackets kit for Slim 15-20-25 (2 pieces):
SGB00049AA
Dimensions:
Weight:

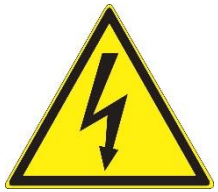
Spare part number installation brackets kit for SPA 40-50 (2 pieces):
SGB00165AA
Dimensions:
Weight:

Spare part number installation brackets kit for SPA Slim 15-20-25 (2 pieces):
SGB00166AA
Dimensions:
Weight:

How to replace the installation brackets

Use a pipe wrench #10 to lose the bracket screw and replace them with the new ones

How to replace the plug



Remove the plug before following the instruction

How to replace the plug

Spare part number EU plug:
SEB00096AA
Dimensions:
Weight:

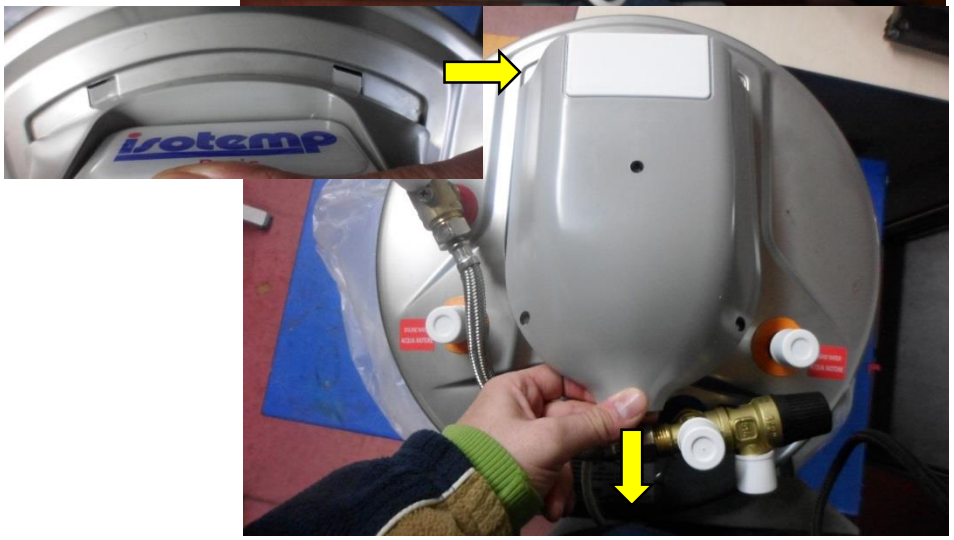
Spare part number UK plug (13A fuse inside): **SEB00073AA**
Dimensions:
Weight:

How to replace the plug

Spare part number USA plug:
SEB00080AA
Dimensions:
Weight:

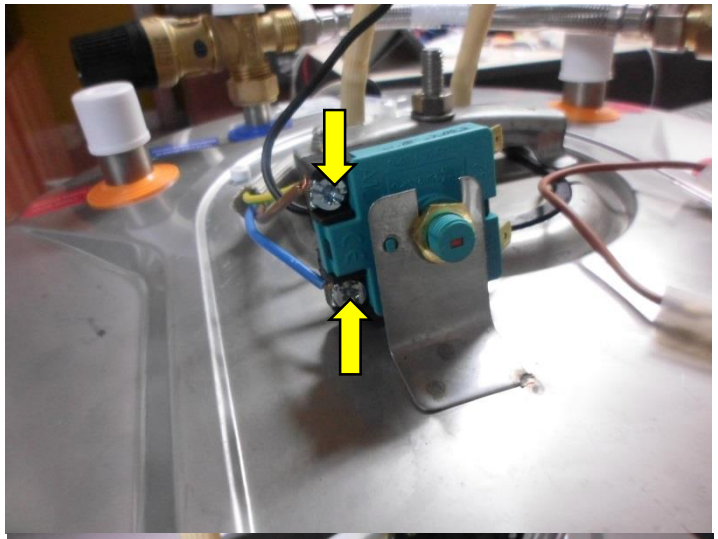
How to replace the plug

Remove the fixing screws of the cover

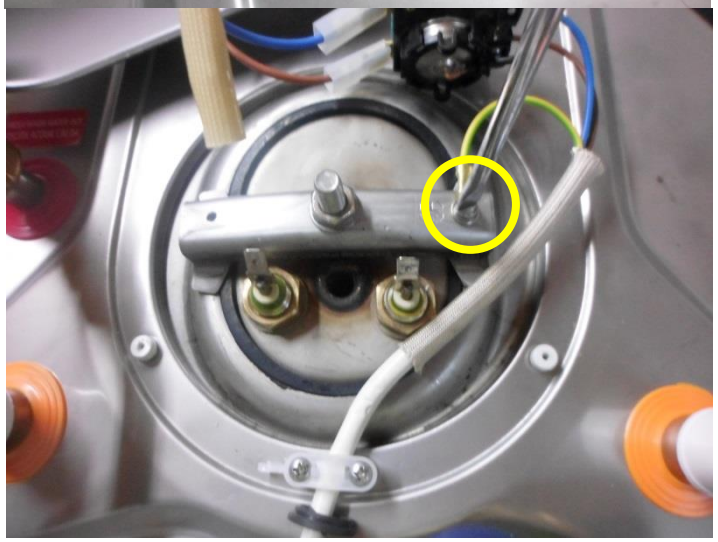


Pull the cover out paying attention to the plastic inserts on the back

How to replace the plug



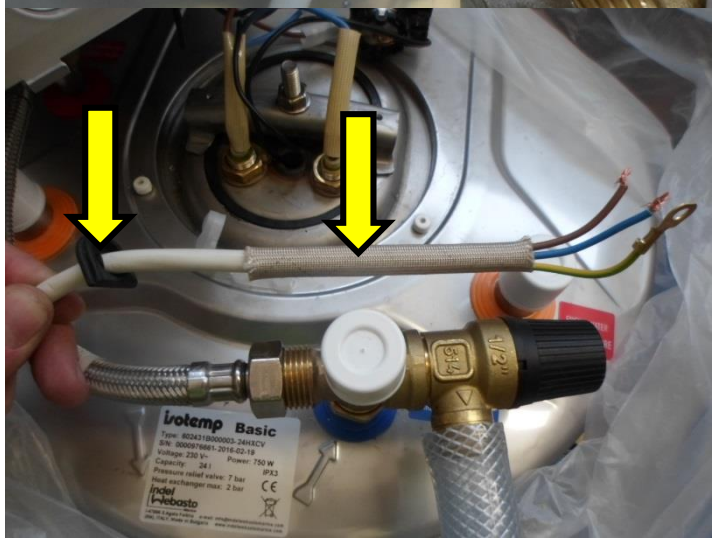
Lose the screws on the thermal cut-off thermostat to remove the plug cables



Remove the ground cable

How to replace the plug

Lose the screws on the plastic holder of the plug



Remove the cable protection and rubber.

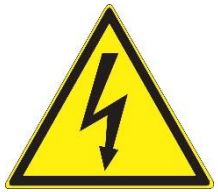
Attention: remembert to insert the rubber and cable protection on the new plug

The automatic differential switch triggers when connecting the plug

Normally when the differential switch triggers when plugging the heater it's because the heating element is damaged somewhere and you need to replace it

How to replace the heating element

How to replace the plastic cover



Remove the plug before following the instruction

How to replace the plastic cover

Spare part number Basic cover:
SBE00047AA
Dimensions:
Weight:

Spare part number Slim cover:
SBE00095AA
Dimensions:
Weight:

How to replace the plastic cover

Spare part number SPA cover:
SBE00296AA
Dimensions:
Weight:

The SPA cover is identical for standard and Slim models

How to replace the plastic cover

Remove the fixing screws of the plastic cover

Attention: in case the heater is a SPA or a Slim just remove the fixing screws and skip all other steps

Pull the cover out paying attention to the plastic inserts on the back

Sostituire la copertura di plastica

Remove the sticker on the plastic cover

With a screwdriver remove the marked screws to remove the plastic cover

Heating elements – powers and compatibilities

Heating elements – powers and compatibilities

Slim	230V-750W	230V-1200W	230V-2000W	115V-750W	115V-1200W
15	X (std)			X	
20	X (std)	X		X	X
25	X (std)	X	X	X	X
Basic					
24	X (std)			X	
30	X (std)			X	
40	X (std)	X		X	X
50	X (std)	X	X	X	X
75	X (std)	X	X	X	X
SPA					
15	X (std)			X	
20	X (std)			X	
25	X (std)	X		X	X
30	X (std)			X	
40	X (std)	X		X	X

Click on the desired heating element for spare part number