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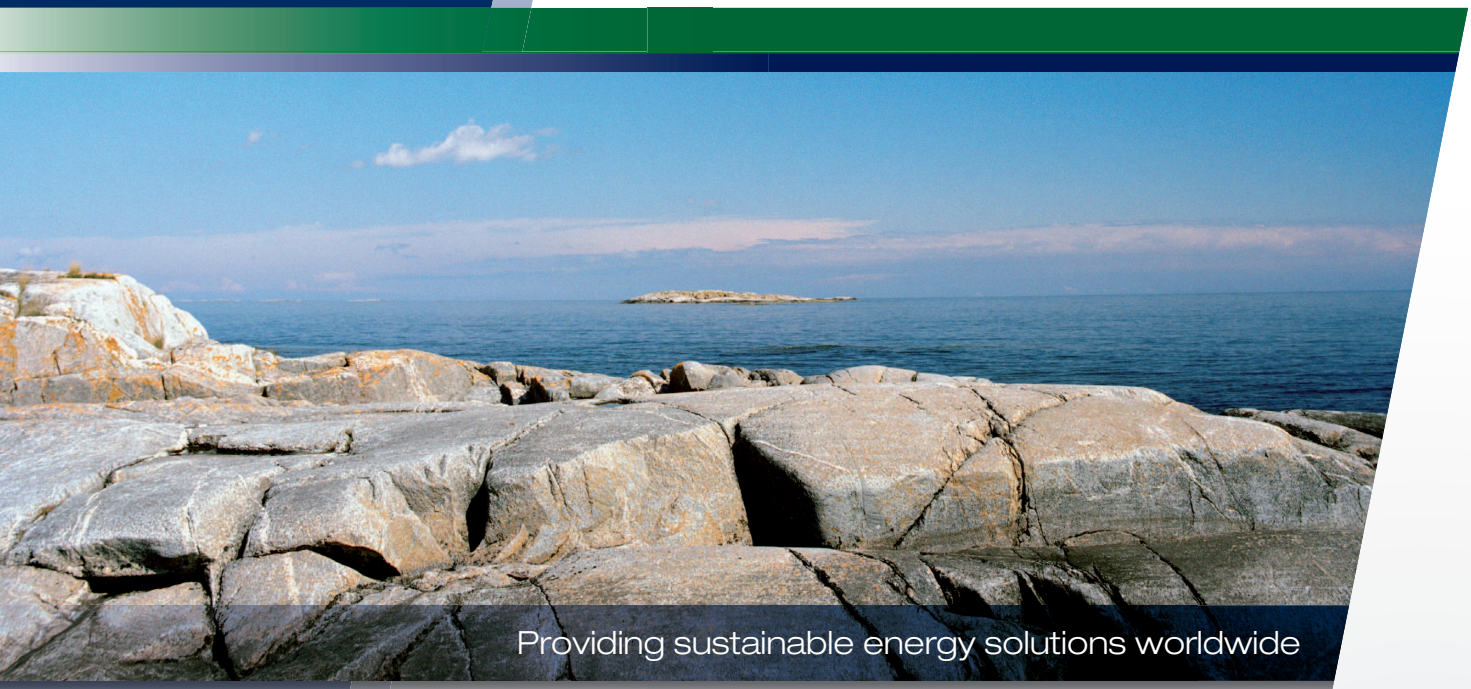


Installation- and maintenance instructions

CTC EcoZenith C 530 / 510

IMPORTANT
READ CAREFULLY BEFORE USE
KEEP FOR FUTURE REFERENCE

CTC
Enertech Group

Installation- and maintenance instructions

161 505 77-4 2015-11-16

CTC EcoZenith C 530 / 510

Innehållsförteckning

FOR YOUR OWN REFERENCE

Complete the boxes below. They can be handy if something should happen.

Unit	Manufacturing number
Installation engineer	Telephone number
Installation date	

Welcome

You are now the owner of a CTC EcoZenith C 530 or CTC EcoZenith 510. CTC EcoZenith C 530 is a buffer tank with a volume of just over 500 litres and has among other features inbuilt solar and hot water coils for use, for example, as the first tank in a wood boiler system.

CTC EcoZenith 510 is a volume increasing buffer tank of just over 500 litres primarily for wood burning and solar panel systems. The tanks are well insulated with 90 mm of polyurethane foam.

Important to remember!

Pay special attention to the following points on delivery and during installation:

- Transport and store CTC EcoZenith C 530 and 510 upright. A unit can be laid
  on its back for a short time if necessary.
- Remove the packaging, and, before installation, check that the unit has not been damaged during transportation. Notify the forwarding agent if any such damage
  has occurred.
- Install CTC EcoZenith C 530 or 510 on a solid foundation, preferably a concrete base. If it is to stand on a soft carpet, plates must be placed under the feet.
- Remember to leave a service space of minimum 1 m in front of the unit. Space is also required around it for fitting the insulation and plastic top. See section Transport, unpacking and installation in the section for the installation technician.
  CTC EcoZenith C 530 and 510 should also not be placed below floor level.

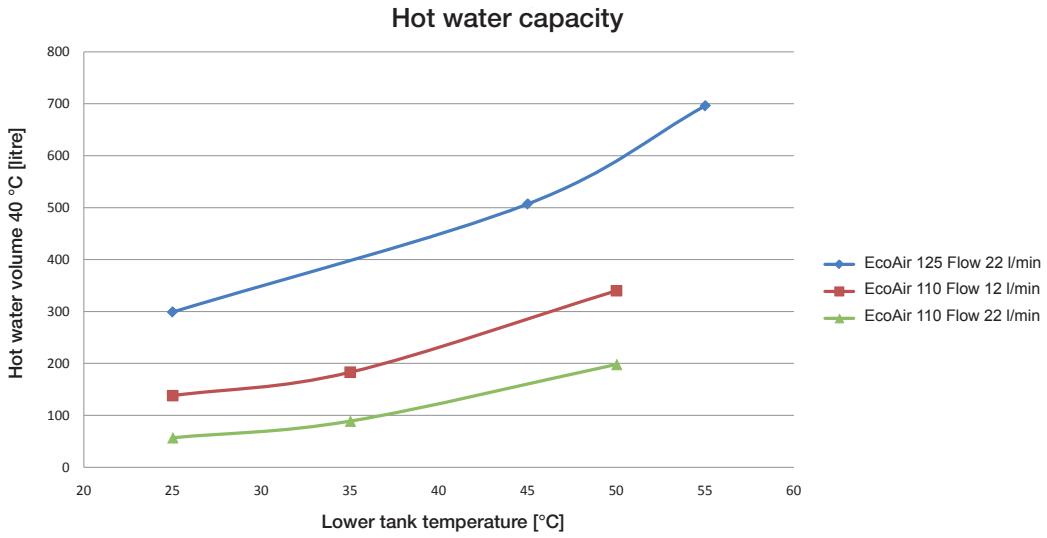
Safety Instructions

Comply with the following safety instructions when handling, installing and using
CTC EcoZenith C 530 and 510:

- Do not rinse off CTC EcoZenith C 530 and 510 with water.
- When handling the unit with a lifting eye or similar, ensure that the lifting equipment, eye bolts and other parts are not damaged. Never stand under a hoisted unit.
- Never jeopardize safety by removing, for example, bolted covers or hoods.
- Never jeopardize safety by deactivating safety equipment.
- Work on the unit may only be carried out by authorised personnel.
- Safety valve check:
- Check the safety valves for the boiler/system and hot tap water regularly.
  See section Operation and maintenance.
- This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.
- Children should be supervised to ensure that they do not play with the appliance.

1. Hot water

CTC EcoZenith C 530 contains a total of about 40 metres of finned, copper coil for heating water. This pre-heats the water through the lower tank and then passes through the upper tank for the final temperature increase. There are two coils running side-by-side through the tanks, which allows for high flow rate with low pressure drop and can provide a large amount of hot water
and associated comfort.



2. CTC EcoZenith C 530 design

The illustration below shows the design of the unit.

Fresh water connections
The building's fresh water supply is connected here. The cold water is fed down to the lower part of the coiling.

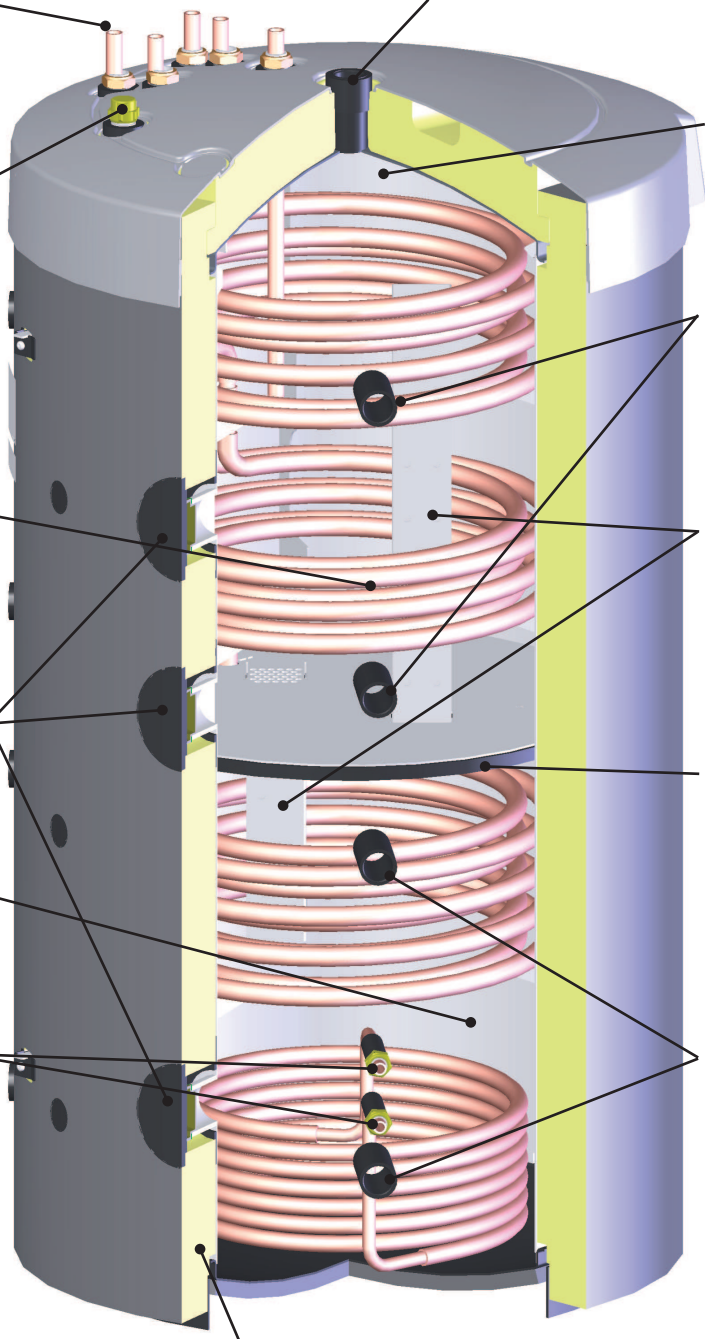
Bivalent mixing valve connection
Connection for a bivalent mixing valve. A bivalent mixing valve has two ports, and its primary purpose is to take in radiator water from the lower part of the tank.

Finned coil for hot water
CTC EcoZenith C 530 is equipped with a well dimensioned, finned, copper coil; no water heater that would be susceptible to corrosion is included. The temperature can be kept low without the risk of legionnaires' bacteria forming.

Immersion heaters
CTC EcoZenith C 530 has three connections for immersion heaters (Immersion heaters are accessories).

Lower tank
In the lower part of the tank, warm water is pre-heated in the finned coil.

Solar coil connections
The well-dimensioned, 10 m long, finned coil can be connected directly to the solar panels.



Top connection
For connecting an expansion vessel and/or safety valve.

Upper tank
In the upper part of the tank, the warm water in the coil is heated up to the desired temperature.

Upper tank connections
The upper part of the tank, top section, can be heated by a heat pump and be connected to heat sources such as an electric, gas, oil or pellets boiler. Heat from a wood boiler is also fed to this part. The connections are symmetrically placed on both sides of the tank.

Heat distribution pipe
The heat distribution pipes ensure that heat from the solar coil is fed up to the upper part and that cool water, after a discharge of hot water, is fed down to the lower part of the tank to be heated up again by, for example, solar heat or a heat pump.

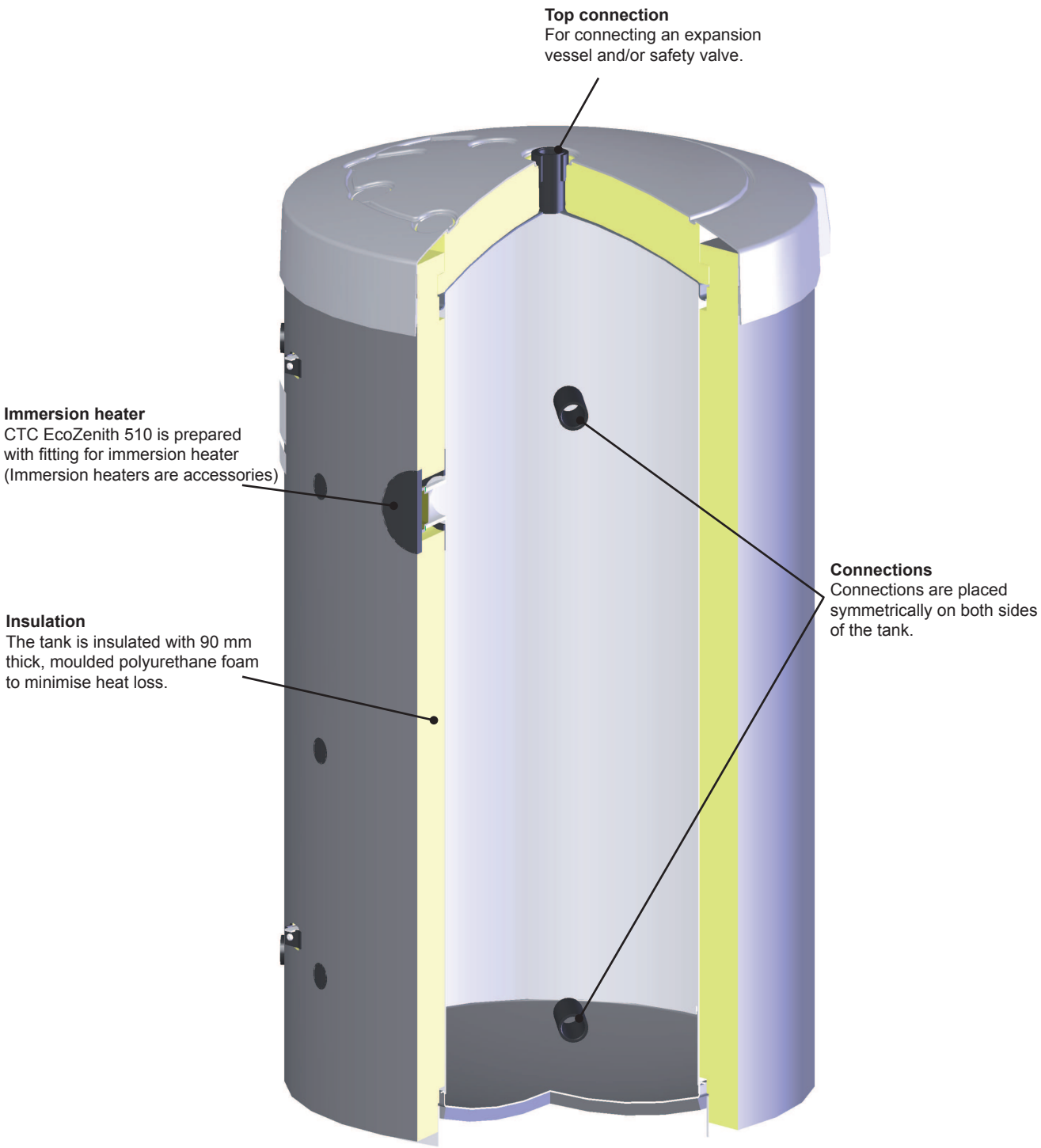
Insulated tank divider
There is an insulated dividing plate between the upper and lower parts of the tank. This retains the higher temperature water in the upper part, to provide good hot water capacity, and the lower temperature water in the lower part for the best heat exchange of solar heat.

Lower tank connections
A heat pump and solar coil can be connected to the lower part of the tank. Water to be heated by a wood boiler is drawn from here. The connections are symmetrically placed on both sides of the tank.

Insulation
The tank is insulated with 90 mm thick, moulded polyurethane foam to minimise heat loss.

3. CTC EcoZenith 510 design

The illustration below shows the design of the unit.



4. Operation and maintenance

When your new CTC EcoZenith C 530 or 510 has been installed, you should, together with the installation technician, ensure that the installation is optimal. Let the technician show you how it works and should be maintained. Purge the radiators after about three day's operation and add water as necessary.

4.1 Safety valve for the tank and radiator system

Check regularly that the valve is working properly by manually turning the valve knob. Check that water comes out of the overflow pipe. The overflow pipe outlet must always be open. Hot water can drip from the safety valve.

4.2 Draining the tank

There must be no electrical supply to the tank during drainage. The drain valve is packaged separately and can be connected directly onto one of the lower connections, if one is free, or to a low lying pipe. When draining the whole system, fully open the mixing valve, i.e. turn it as far as possible anti-clockwise. Air must be applied to a closed system.

4.3 Operation stop

If there is a risk of the water freezing when the system is not in use, all the water must be drained from the tank and radiator system. The hot water coils, which contain about eleven litres, are emptied by feeding a hose all the way down inside the coils into the cold water connections and then siphoning out the water.

4.4 Noise problems

Sudden changes in pressure in the tap water system may cause noise. This is due to pressure surges which occur when, for instance, an older type of instant closing mixer is turned off quickly. The fault is not in CTC EcoZenith C 530, and the problem can be easily rectified by replacing the mixer with a soft-closing one. In the case of noise from hard closing dishwashers and washing machines, this can be rectified with a pressure surge damper, which is also a viable alternative to soft closing taps/mixers. Minimizing pressure surge benefits the whole of the tap water system generally.

If pouring sounds come from the unit, check that it is well purged. Turn the boiler safety valve to evacuate any air in the system. If the problem is repeated, have a specialist check the cause.

5. Transportation, unpacking and installation

This section is intended for the technician responsible for one or several of the installations needed for CTC EcoZenith C 530 and 510 to function as desired by the property owner. Take some time to go through the functions and settings with the property owner and answer any questions. Both CTC EcoZenith C 530/510 and you will benefit by the user having good knowledge of how the application works and should be maintained.

Transportation

Transport the unit to the installation site before removing the packaging. Handle CTC EcoZenith C 530 and 510 in one of the following ways:

- Forklift
- Lifting eye which is fitted in the socket in the middle of the top of the tank.
- Lifting straps around the pallet. NOTE! Can only be used with the packaging still
  in place. Be aware when handling that the unit's centre of gravity is high up.

! The unit must be stored and transported in an upright position.

Unpacking

When the CTC EcoZenith C 530 or 510 has been placed at the installation site, the packaging can be removed. Make sure the unit has not been damaged during transportation. Notify the forwarding agent of any transportation damage. Also
check that the delivery is complete and in accordance with the list below.

Standard delivery - CTC EcoZenith C 530

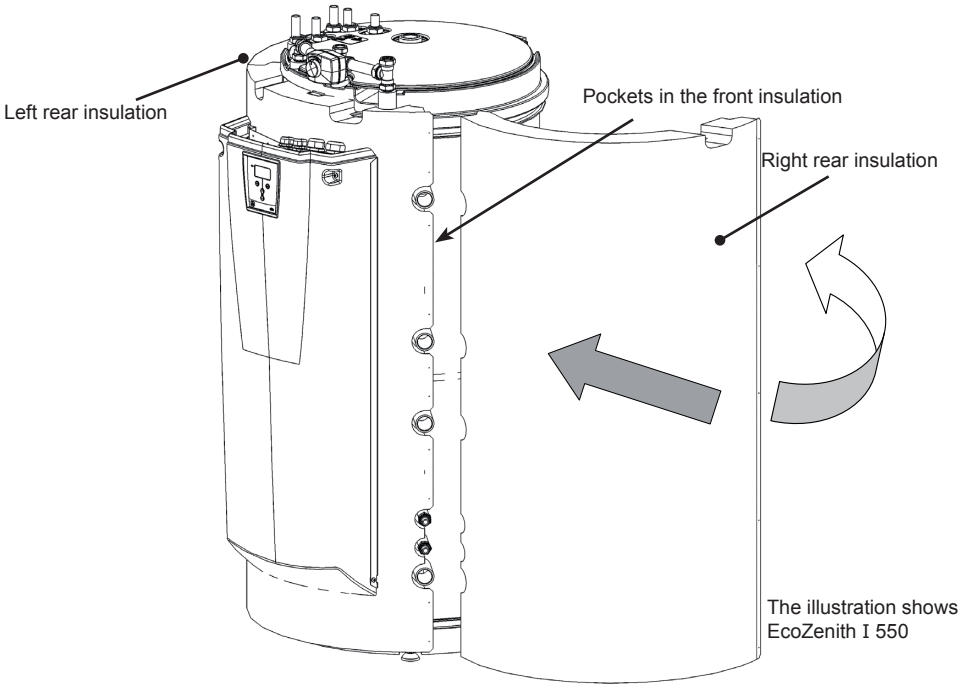
- Tank - CTC EcoZenith C 530
- Additional package with:
- Installation and Maintenance Manual
- Safety valve 9 bar (tap water)
- Safety valve 2.5 bar (radiator system)
- Drain valve
- Adapter between the drain valve and the connection sleeve
- Cover plates for upper and lower tank connections, 8pcs
- Cover plates for solar connections, 2pcs
- Insulation for connection sleeves that are not used
- Screw 4.2 x 14 graphite grey, 25 off + 2 extra
- Screw 4.2 x 14 zinc grey, 4 off + 2 extra
- Additional package with rear insulation sections and top

Standard delivery - CTC EcoZenith 510

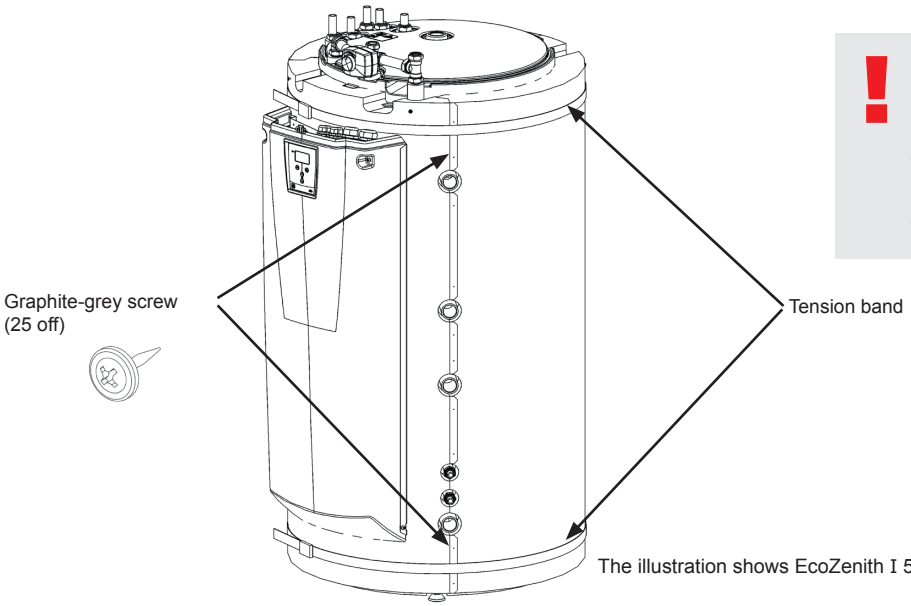
- Tank - CTC EcoZenith 510
- Additional package with:
- Installation and Maintenance Manual
- Sensor - upper and lower tank, 2 off
- Safety valve 2.5 bar (radiator system)
- Drain valve
- Adapter between the drain valve and the connection sleeve
- Cover plates for upper and lower tank connections, 4pcs
- Insulation for connection sleeves that are not used
- Screw 4.2 x 14 graphite grey, 21 off + 2 extra
- Screw 4.2 x 14 zinc grey, 4 off + 2 extra
- Additional package with rear insulation sections and top

Fitting rear insulation and top cover

The rear insulation sections and top cover should be fitted before the CTC EcoZenith C 530 or 510 is placed against a wall or in a corner for pipe and electrical connection. These parts are delivered separately and they are easier to fit if there is space around the unit.

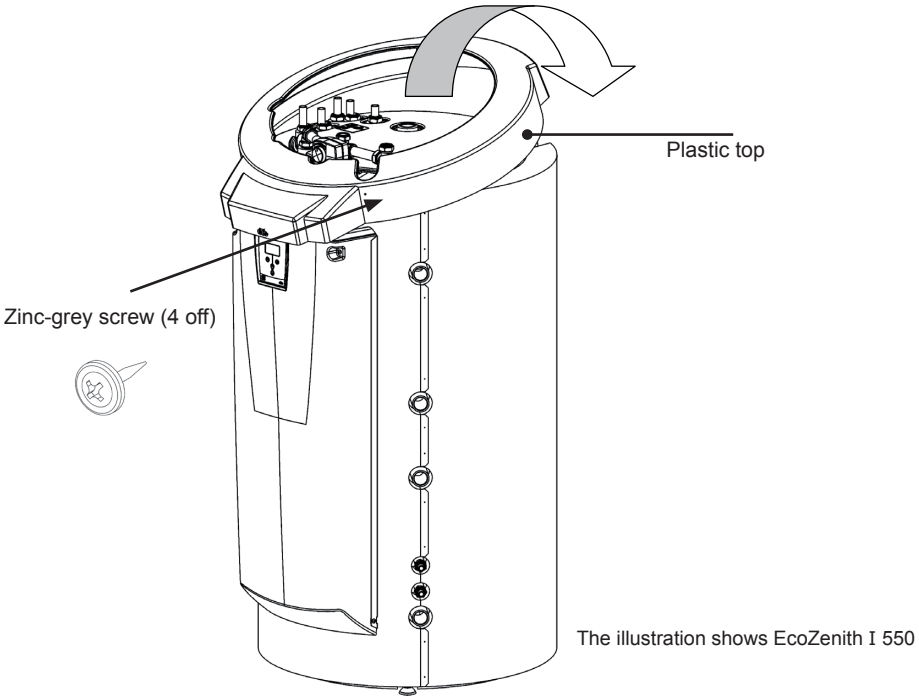


Begin with the left rear insulation. Turn out the insulation, locate it in the pockets in the front insulation and then turn it in against the tank. Repeat this procedure for the right rear insulation. Note that the right rear insulation needs to be turned out quite a lot for it to locate easily in the pockets.



! The tension bands can scratch the surface of the insulation. Use a piece of cardboard or similar to protect it.

When the rear insulation is in place, tension bands can be used to hold it firmly against the tank. Attach the insulation sections to each other using the 25 graphite-grey screws provided. The screw holes are factory prepared.



Fit the plastic top at the front and tip it backwards to locate it under the mixing valve actuator. Fit the 4 provided zinc-grey screws in the prepared holes. Ensure that the top is correctly aligned with the front.

6. Pipe installation

The installation shall be carried out in accordance with applicable heating and hot water standard. The unit shall be connected to an expansion vessel in an open or closed system. Remember to flush the radiator systems before connecting.

Connections, position and dimensions

See Technical data.

Pipe installation of the product

If annealed piping is used, fit support sleeves

Mixing valve

Install a mixing valve for the hot tap water in order to avoid the risk of scalding.

Safety valves

The CTC EcoZenith C 530 and 510 safety valves for the tap water circuit and boiler are packaged separately. Drain pipes shall run to a draining gutter, either directly, or, if the distance is more than two metres, to a funnel. Water can drip from the drain pipe. The piping must have a slope to the draining gutter, freezing risk must be avoided and it must be open/pressureless.

! The opening pressure of the safety valve must be determined by the component of the system that can withstand the lowest pressure.

Radiator system filling valve

Fit the filling valve between the cold water connection and the radiator return pipe, or between the cold water pipe and the expansion pipe.

Drain valve

Fit the drain valve (separate package) to one of the CTC EcoZenith C 530 / 510 lower connections. The adapter for this is provided in the package. The drain valve can also be fitted into a low lying pipe.

Pressure gauge – system pressure

Fit a pressure gauge to the expansion pipe or radiator return pipe.

Expansion vessel connection

It is best to connect the CTC EcoZenith C 530 or 510 to a closed expansion vessel. If an open system is used, the distance between the expansion vessel and the highest radiator should exceed 2.5 metres, otherwise the system will become oxygen saturated.

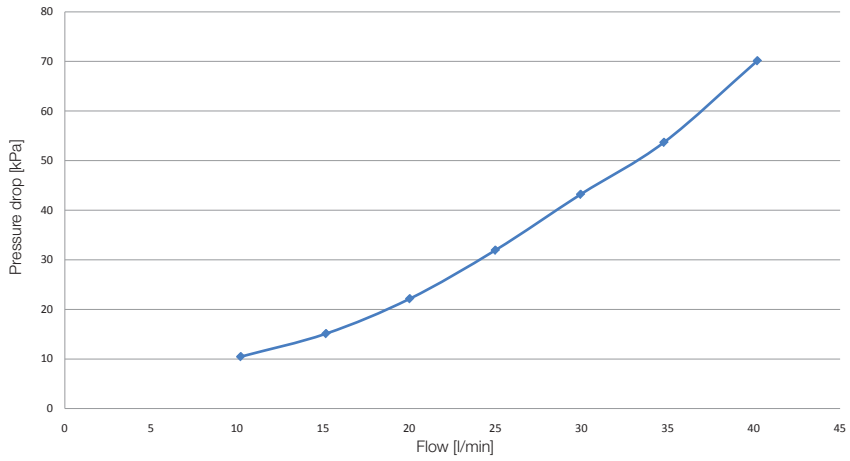
Insulation

For best efficiency, carefully insulate all parts of the piping, used connections and unused plugged connections. Use supplied insulation parts and complete with insulation of the type Armaflex with a thickness of at least 10-15mm or equivalent. Make sure that the insulation on the connections reaches all the way up to EcoZeniths own insulation to avoid heat losses.

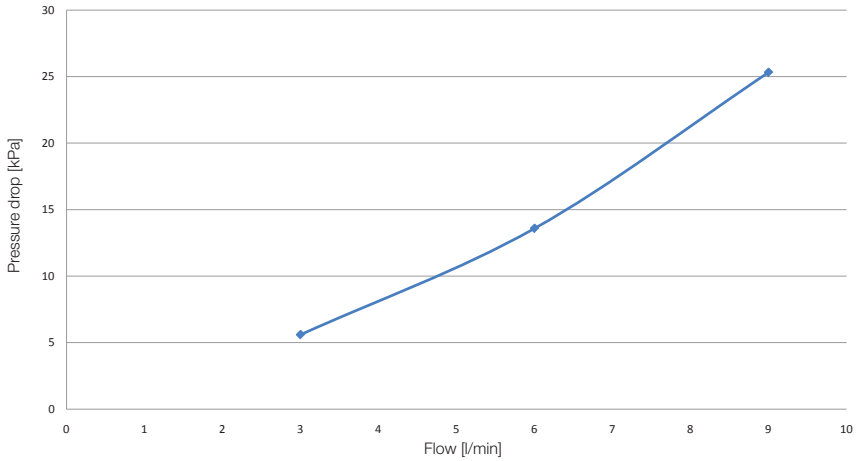
7. Technical data

		CTC EcoZenith C 530	CTC EcoZenith 510
Main dimensions on delivery	mm	750 x 818 x 1700	
Main dimensions when installed	mm	886 x 935 x 1700	
Weight	kg	239	134
Insulation (Polyurethane, PUR)	mm	90	
Hot water capacity (40°C, 22 l/min) Tank temp 55°C, HP (EA125) permitted Tank temp 65/55°C, electrical power 24 kW permitted	litre litre	>600 523	
Pressure drop at flow 40 litres/min	bar	0,7	
Volume - tank	litre	540	555
Volume - hot water coil	litre	11,4	
Max operation pressure - tank	bar	2,5	
Max operation pressure - hot water coil	bar	9	
Hot water coil (finned)	m	2 x 18,6	
Hot water coil circulation (finned)	m	0,6	
Solar coil (finned)	m	10	

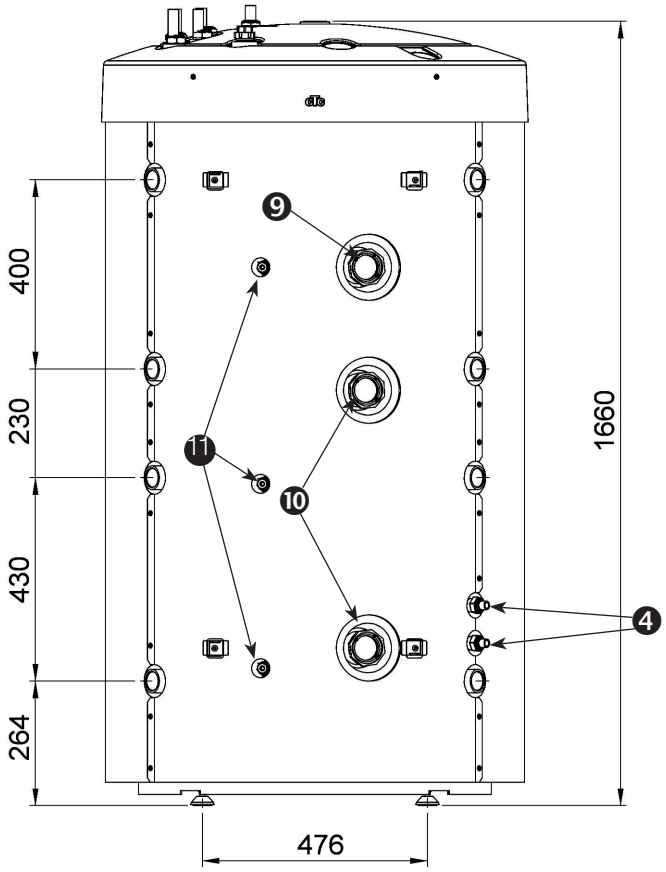
Pressure drop diagram – hot water coils

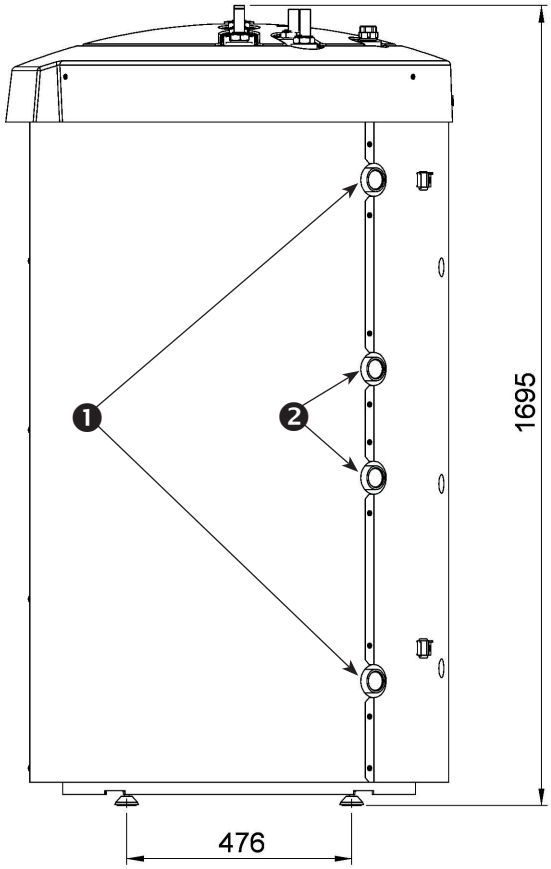


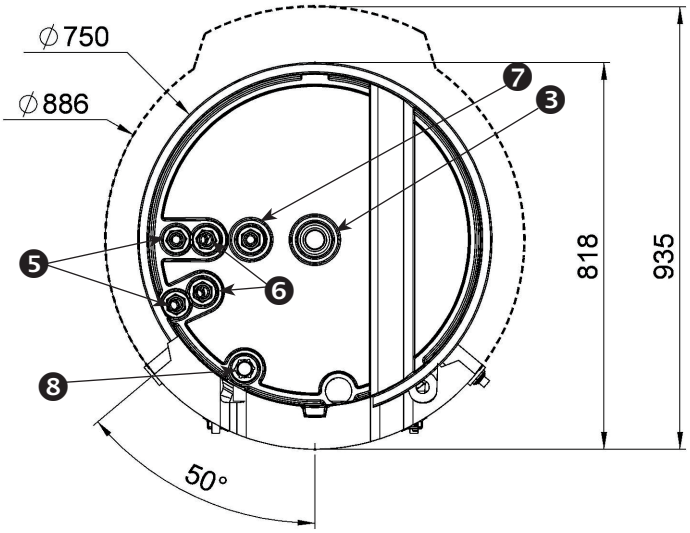
Pressure drop diagram – solar coil



8. Measurements







CTC EcoZenith C 530

1. Heat connection, G 1 1/4” int
2. Heat connection, G 1 1/4” int
3. Expansion vessel/Top con/Lifting socket, G 1 1/4” int
4. Solar coil, Ø18 mm
5. Cold water, Ø22 mm
6. Hot water, Ø22 mm
7. Hot water circulation, Ø22 mm
8. Connection for mixing valve prio 2, 28 mm (Connections for prio 1 and return pipe behind the front insulation, G 1” int)
9. Immersion heater connection, G 2” int
10. Immersion heater connection, G 2” int
11. Pocket for temperature sensor, Ø6.5 mm

CTC EcoZenith 510

1. Heat connection, G 1 1/4” int
3. Expansion vessel/Top con/Lifting socket, G 1 1/4” int
9. Immersion heater connection, G 2” int
11. Pocket for temperature sensor, Ø6.5 mm

Enertech AB
Box 313
S-341 26 LJUNGBY

Försäkran om överensstämmelse
Déclaration de conformité
Declaration of conformity
Konformitätserklärung

försäkrar under eget ansvar att produkten,
confirme sous sa responsabilité exclusive que le produit,
declare under our sole responsibility that the product,
erklären in alleiniger Verantwortung, dass das Produkt,

CTC EcoZenith

som omfattas av denna försäkran är i överensstämmelse med följande direktiv,
auquel cette déclaration se rapporte est en conformité avec les exigences des normes suivantes,
to which this declaration relates is in conformity with requirements of the following directive,
auf das sich diese Erklärung bezieht, konform ist mit den Anforderungen der Richtlinie,

EC directive on:

Pressure Equipment Directive 97/23/EC, § 3.3 (AFS 1999:4, § 8)

Electromagnetic Compatibility (EMC) EN 2004/108/EC

Low Voltage Directive (LVD) EN 2006/95/EC

Ecodesign Directive 2009/125/EC
(regulations (EU) 811/2013, 812/2013, 813/2013, 814/2013 where applicable)

Överensstämmelsen är kontrollerad i enlighet med följande EN-standarder,
La conformité a été contrôlée conformément aux normes EN,
The conformity was checked in accordance with the following EN-standards,
Die Konformität wurde überprüft nach den EN-normen,

EN 14731:2006 EN 55014-1 /-2

EN 3834-2:2005 EN 61 000-3-2

EN 15614-1:2004 EN 60335-1, 2-21

EN 1418 EN 50366:2002, +A1

EN 287-1:2004

EN 10 204, 3.1B:2005

EN 10 025-1, -2, S 235 Jr-G2:2004

Detailed ecodesign information can be downloaded at: www.ctc.se/ecodesign

Ljungby 2015-09-02

Joachim Carlsson

Technical Manager

161 505 77-4 2015-11-16

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Enertech Group