



Providing sustainable energy solutions worldwide

Installation and Maintenance manual
CTC AT 1 / AT 2
Hot Water Storage Tanks

Important!

- Read carefully before use, keep for future reference.
- Translation of the original instructions.



Installation and Maintenance Manual

CTC AT 1 / AT 2 Hot Water Storage Tanks



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For your own reference

Fill in the information below. It may come in useful if anything should happen.

Product:	Manufacturing number:
Installer:	Name:
Date:	Tel. no.:

No liability is accepted for any misprints. Subject to design changes.

Checklist

The checklist must always be completed by the installation engineer

- In the event of servicing, this document may need to be provided
- Installation must always be carried out according to the Installation and Maintenance Instructions
- Installation must always be carried out according to professional standards

Following installation, the unit must be inspected and functional checks performed as indicated below:

Pipe installation

- The system filled, positioned and adjusted according to professional standards and the instructions
- Product placed to facilitate service
- Pumps, valves, etc. sized according to required flows
- System tested for leakage and correctly sealed
- Bleeding performed (subsequent bleeding may be necessary)
- Safety equipment fitted and inspected/functionally tested
- Overflow pipes from safety valves routed to floor drain
- Tank system flushed with cold freshwater as per these instructions
- Secondary visit to inspect seals and check that system bleeding performed

Electrical installation

- Safety switch installed
- Cable routing correct according to applicable regulations
- Correct fuse installed (group fuse)

Information provide to customer (according to the specific installation)

- Start-up with customer/installer
- Review of heating unit connected to the tank system
- Installation and Maintenance Manual given to the customer
- Check and filling, heating circuit
- Fine-tuning information, valve settings, etc.
- Information about operational disruptions and appropriate measures
- DHW mixing valve placement and settings
- Safety valve function test
- Warranties and insurance
- Installation verification/warranty filled in and posted
- Information and procedures for reporting faults

Date/Customer

Date/Installer



If these instructions are not followed when installing, operating and maintaining the system, Enertech's obligation under the applicable warranty terms is not binding

Congratulations on your new product!



You have just purchased a CTC Hot Water Storage Tank (CTC AT), which we hope you will be very pleased with.

CTC's Hot Water Storage Tanks are coil tanks and volume tanks of 300-1000 litres and are designed for almost all types of energy sources. They are available in several models and sizes, and can also be combined to fit most heating systems and properties.

All the tanks are well-insulated with polyurethane for the lowest possible energy loss.

CTC Hot Water Storage Tank 1 is a series of coil tanks for efficient DHW heating. DHW heating is via finned copper coils, which are heated by the radiator water in the tank.

CTC Hot Water Storage Tank 2 is a series of volume tanks that can be connected together to achieve the desired storage volume.

A hot water storage tank is necessary for wood boilers in order to store energy, since wood boilers often produce more energy than can be consumed at any given time. The size of the tank depends on the size and type of wood boiler installed.

Safety instructions



Turn off the power with an omnipolar switch before doing any work on the product.



The product must be connected to protective earth.



The product is classified as IPX1. The product must not be rinsed with water.



When handling the product with a hoist ring or similar device, make sure that the lifting equipment, eyebolts and other parts are not damaged. Never stand under the hoisted product.



The product's electrical systems should only be installed and serviced by a qualified electrician.



Safety valve check:
-Safety valve for boiler/system to be checked regularly.



This device can be used by children from the age of eight years and above and by people with reduced physical, sensory or mental ability or lack of experience or knowledge if they have been taught, either with supervision or with the instructions provided, how to use the device safely and understand the risks involved. Children should not play with the device. Cleaning and maintenance should not be carried out by children without supervision.



If these instructions are not followed when installing, operating and maintaining the system, Enertech's commitment under the applicable warranty terms is not binding.




Information in this type of box [!] is particularly important for correctly installing and using the product.

1. Important to remember!

Check the following in particular on delivery and installation:

1.1 Transportation

- Transport the CTC Hot Water Storage Tank to the installation site before removing the packaging. The product must be transported and stored in an upright position.
- Handle the CTC Hot Water Storage Tank in one of the following ways:
 - Forklift
 - Lifting eye which is fitted in the sleeve in the middle of the top of the tank.
 - Lifting strap around the pallet. NB: Can only be used with the packaging on. Remember that the product has a high centre of mass and should be handled with caution.

 The product must be transported and stored in an upright position.

1.2 Positioning

- Remove the packaging and check before installation that the product has not been damaged in transit. Report any transport damage to the carrier.
- Place the product on a solid surface, preferably concrete foundation, and stabilise using the adjusting screws at the bottom of the tank. Models without adjustment screws can be stabilised with spacers. This must be done before connecting the hot water storage tank to piping and before it is filled with water.
If the product needs to be placed on a soft carpet, base plates must be placed under the adjustable feet.
- Remember to leave an open area of at least 1 metre in front of the product for servicing. Space is also needed around the product for fitting insulation and the top panel.
- The product must not be placed below floor level.
- Connections that are not being used must be appropriately plugged. During water filling, condensation may occur on the tank exterior. This may be visible as water on the floor underneath the tank. This condensation will stop once the tank is heated. The floor drain must be located in the same area.

1.3 Recycling

- The packaging must be deposited at a recycling station or with the installation engineer for correct waste management.
- Obsolete products must be disposed of correctly and transported to a waste station or distributor/retailer offering this service.
Do not discard the product with household waste.

1.4 After commissioning

- The installation engineer advises the property owner on the construction and servicing of the system.
- The installer completes a checklist and provides contact information – the customer and installer engineer sign the list, which is kept by the customer.
- Make sure to register for warranty and insurance on the CTC website: <https://www.ctc-heating.com/customer-service#warranty-registration>

2. Operation and Maintenance

Once CTC Hot Water Storage Tank has been installed, you and your installer should together check that the system is in perfect operating condition. Let the installer show you how the system works and how it should be maintained. Bleed the radiators after approximately three days of operation and refill the water if necessary.

Pressurise before filling the radiator system (surrounding water). The operating pressure must not exceed the pressure indicated on the rating plate. A safety valve must always be equipped.

Safety valve for tank and heating circuit

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

Regularly check all connections for any leaks (including peripheral equipment such as the boiler, etc.).

Draining the tank

The tank must be disconnected from power when it is being drained. The drain valve 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, the mixing valve must be fully open, i.e. turned anticlockwise as far as it will go. Air must be supplied to the closed system.

Downtime

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 the radiator system. The DHW coils, which hold approx. 6 litres per coil, are emptied by feeding a hose all the way down the cold water connections and then siphoning out the water.

Noise

Sudden pressure changes in the tap water system may cause noise. This is due to pressure surges which occur when, for instance, an older type of single-lever mixer is closed suddenly. The fault is not in the CTC Hot Water Storage Tank, and the problem can be easily rectified by replacing the mixer with a soft-closing one. If an unusual sound comes from hard-closing dishwasher and washing machines, this can be remedied using a shock arrestor. A shock arrestor can also be an alternative to soft-closing water taps. Minimising pressure surges benefits the whole of the tap water system throughout the property.

If you hear a rasping sound from the product, check that it has been properly bled. Turn the boiler safety valve so that any air can be evacuated. Top up with water where required, so that the correct pressure is achieved. If this noise recurs, call a technician to check the cause.

3. Removing and fitting insulation

These instructions apply to the following hot water storage tank models:

- CTC AT 1. 500/50 (6 bar)
- CTC AT 1. 750/50 (3 bar)
- CTC AT 1. 750/75 (3 bar)
- CTC AT 2. 750 (3 bar)
- CTC AT 2. 1000 (3 bar)

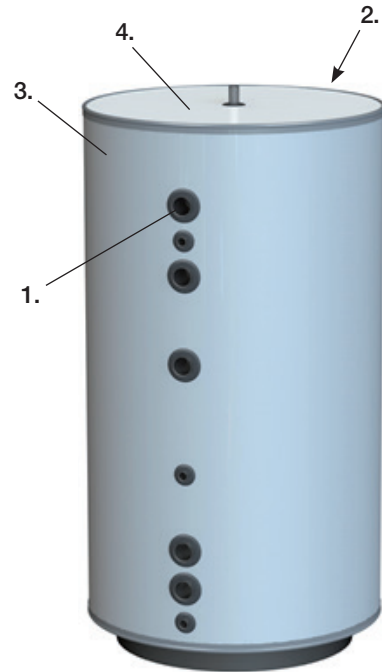
It takes 2 people to remove and fit the insulation.

Removal

1. Remove the cover trays (1) around the sleeves.
2. Release the clamps (2) on the back of the tank, carefully open the hook-and-loop fasteners. Remove the clamp from the hook upside down.
3. Hold the panel (3) and go around the tank in each direction, making sure that the insulation comes off properly and is not snagged around the sleeves. Carefully lay it down with the insulation facing upwards.
4. Remove the top panel (4).

Fitting

1. Fit the top panel.
2. Lift up the panel carefully and go around the tank. While one person holds the panel on the back of the tank, the other person goes to the front and gently pushes the insulation panel over the sleeves.
3. Attach the clamp to the hook upside down, but do not fasten yet. Start from the front in the middle of the tank and go in each direction, while pressing the insulation against the tank so that the hook-and-loop fasteners attach to each other. Press the strip to the top panel. Start at the front and work your way around. Tap lightly with a plastic hammer so that the panel fits correctly into the strip's groove.
4. Tighten the buckle, make sure that the strip is straight and does not twisted, then tighten the lower one in the same way.
5. Refit the cover washers.



4. Pipe installation

The installation must be carried out in accordance with current heating and DHW standards. The product must be connected to an expansion vessel in an open or closed system. Do not forget to flush the radiator system before connection.

Connections, placement and dimensions

Refer to each product's Technical Data.

Pipe connections on the unit

If annealed piping is used, support sleeves must be fitted.

Mixing valve

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

Safety valves

Safety valves for the tap water circuit and boiler are included with delivery. Connect the overflow pipes to the floor drain directly or, if the distance is more than two metres, to a funnel. Water may drip from the overflow pipe. It must therefore slope towards the floor drain, be installed frost-free and left open/without pressure.

Filling valve – heating circuit

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

Drainage valve

Fit the drainage valve to one of the CTC Hot Water Storage Tank's lower connections. The drainage valve can also be fitted into a low lying pipe.

Manometer – system pressure

Fit a manometer to the expansion pipe or radiator return pipe.


Expansion vessel connection

Adjust the expansion vessel to the appropriate pre-pressure for the property. This must be done before the system is filled with water.

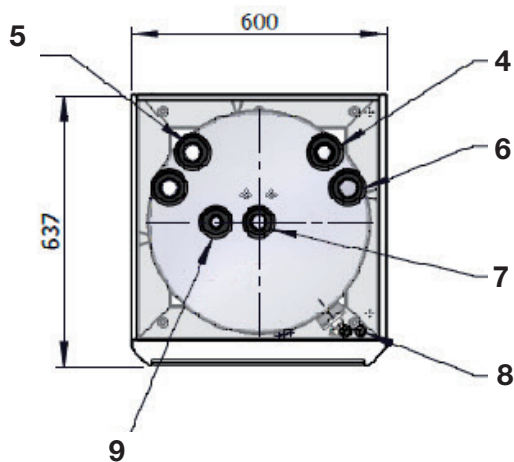
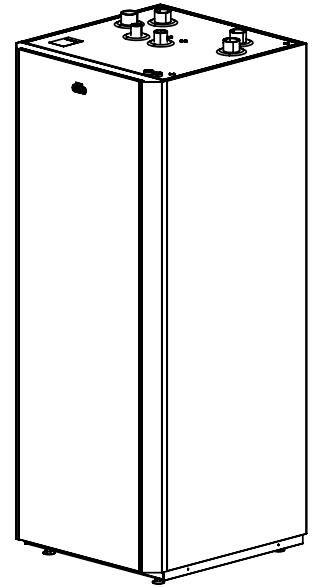
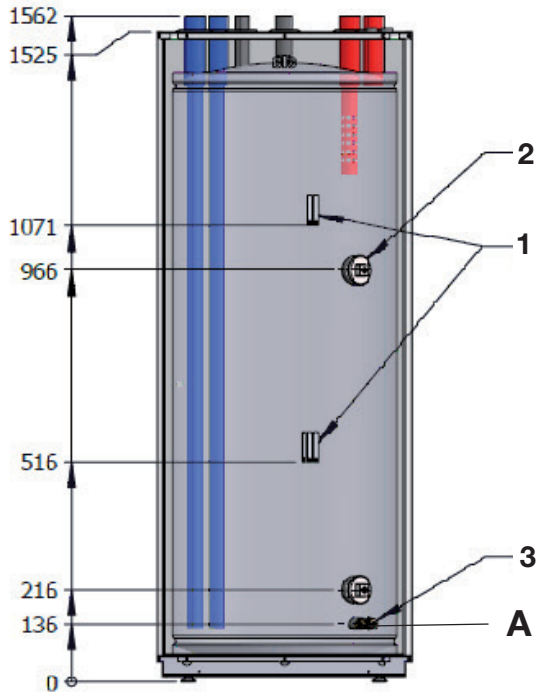
If an open expansion vessel is used, the distance between the expansion vessel and the highest placed radiator must not be below 2.5 m, in order to avoid introducing oxygen into the system.

Insulation

For optimal efficiency, make sure that after installation all pipe parts, connections and used and unused plugged connections are insulated. Use insulation components and supplement these with Armaflex insulation with a minimum thickness of 10-15 mm or equivalent. Make sure the insulation at the connections reaches all the way to the hot water storage tank insulation and that it has no gaps, so as to prevent any loss of heat.

 The safety valve's opening pressure is determined by the component in the system which tolerates the lowest pressure.

5. CTC AT 2. 300 (3 bar)



CONNECTIONS

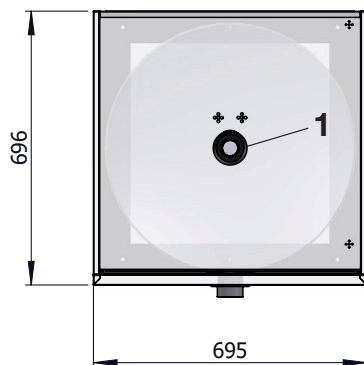
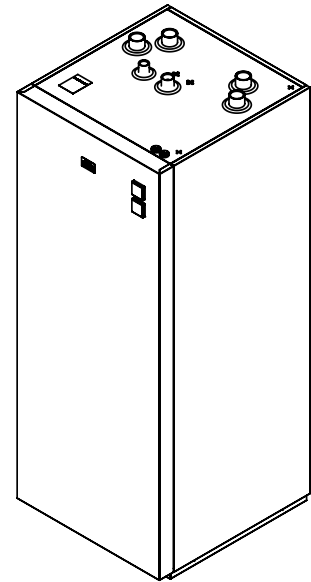
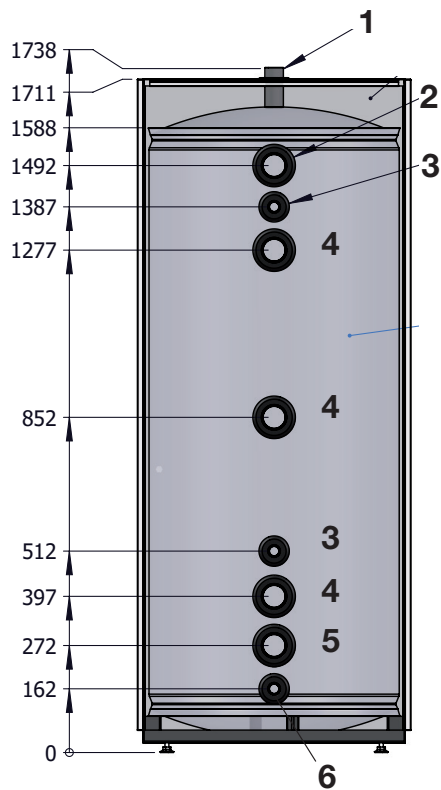
1. Temperature sensor thermowell Ø7
2. Immersion heater outlet (2x) - DN50
3. Draining - DN15
4. Supply diffuser - DN32
5. Return from bottom of tank - DN32
6. Supply radiator - DN32
7. Bleeding - DN25
8. Cable entry (2x)
9. Extra connection - DN20

EQUIPMENT

- A. Drain cock

Article number		589913001
Max operating pressure (PS) Heating system	bar	3
Test pressure Heating system	bar	4.3
Max operating pressure DHW system	bar	–
Test pressure DHW system	bar	–
Max operating temperature (TS)	°C	100
Weight	kg	90

6. CTC AT 2.500 (3 bar)

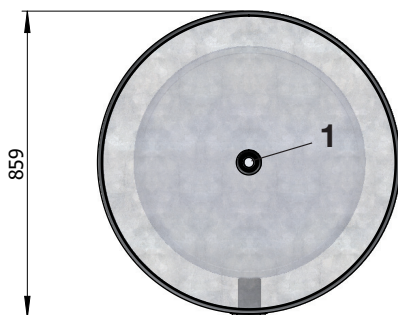
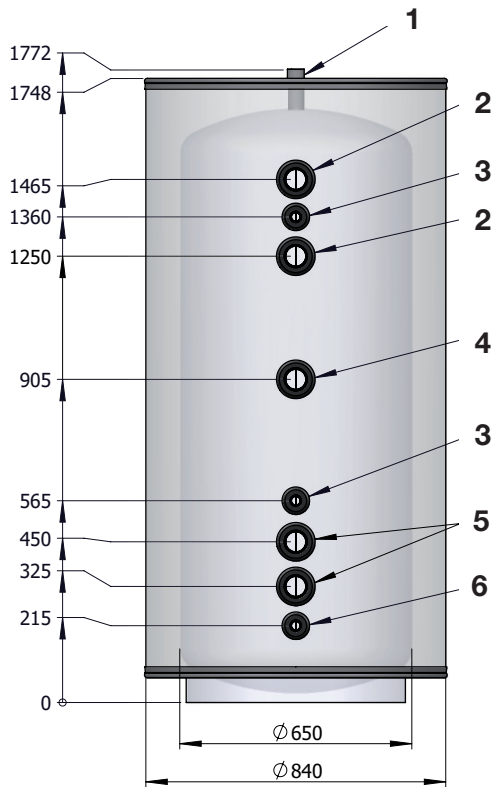


CONNECTIONS

1. Expansion/Bleeding - DN32
2. Supply from heat source - DN50
3. Thermometer - DN20
4. Immersion heater outlet - DN50
5. Return to heat source - DN50
6. Draining - DN20

Article number		588353301
Max operating pressure (PS) Heating system	bar	3
Test pressure Heating system	bar	4.3
Max operating pressure DHW system	bar	–
Test pressure DHW system	bar	–
Max operating temperature (TS)	°C	100
Weight	kg	118

7. CTC AT 2. 500 (6 bar)

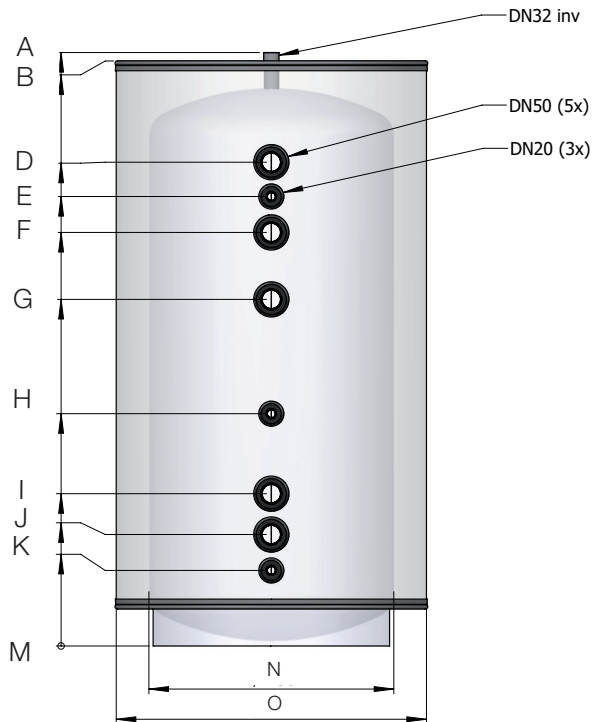


CONNECTIONS

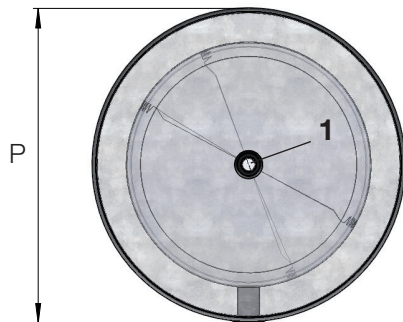
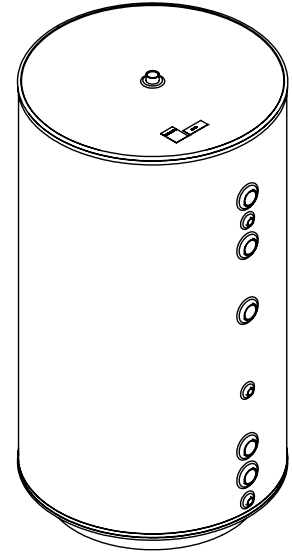
1. Expansion/Bleeding - DN32
2. Supply from heat source - DN50
3. Thermometer - DN20
4. Immersion heater outlet - DN50
5. Return to heat source - DN50
6. Draining - DN20

Article number		589903001
Max operating pressure (PS) Heating system	bar	6
Test pressure Heating system	bar	8.6
Max operating pressure DHW system	bar	–
Test pressure DHW system	bar	–
Max operating temperature (TS)	°C	100
Weight	kg	118

8. CTC AT 2. 750 (3 bar)



Dimensions	
A	1810
B	1784
C	-
D	1515
E	1410
F	1300
G	1015
H	665
I	420
J	295
K	185
L	215
M	0
N	Ø780
O	Ø960
P	980



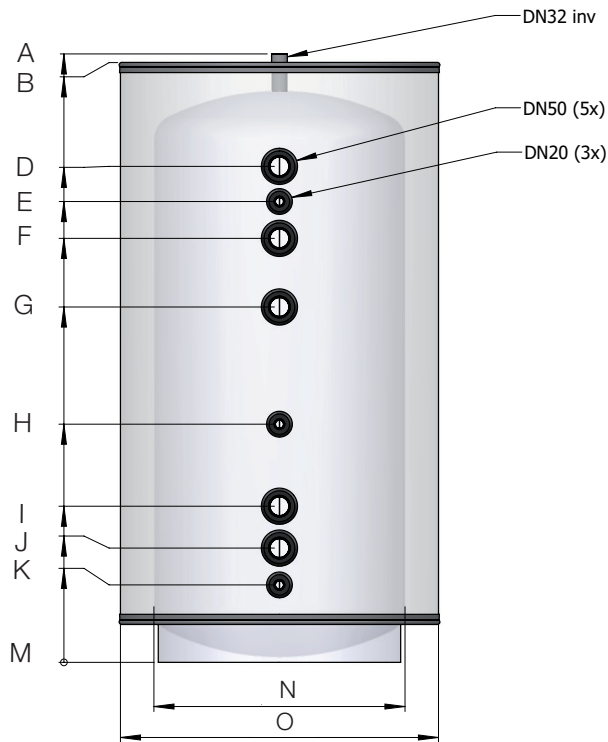
1. DN32: Expansion/Bleeding (A)

5 x DN50: Supply/Return/Immersion heater outlet (D/F/G/I/J)

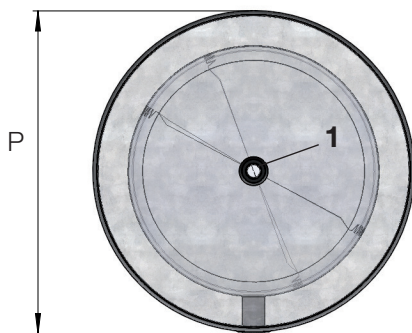
3 x DN20: Draining/Thermometer (E/H/K)

Article number		588352301
Max operating pressure (PS) Heating system	bar	3
Test pressure Heating system	bar	4.3
Max operating pressure DHW system	bar	-
Test pressure DHW system	bar	-
Max operating temperature (TS)	°C	100
Weight	kg	118

9. CTC AT 2. 750 (6 bar)



Dimensions	
A	1817
B	1791
C	-
D	1481
E	1376
F	1266
G	1061
H	711
I	466
J	341
K	231
L	-
M	0
N	Ø750
O	Ø950
P	964



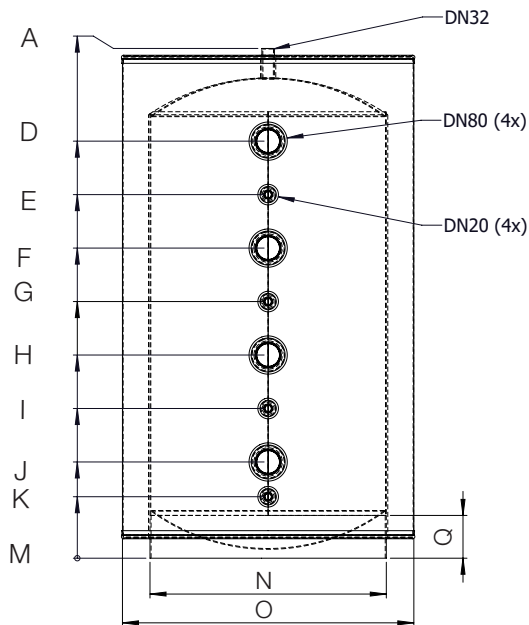
1. DN32: Expansion/Bleeding (A)

5 x DN50: Supply/Return/Immersion heater outlet (D/F/G/I/J)

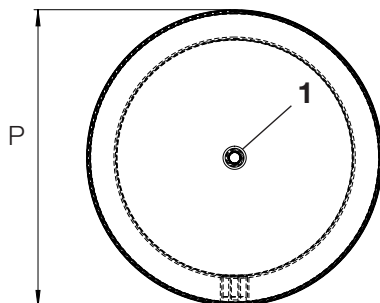
3 x DN20: Draining/Thermometer (E/H/K)

Article number		589904001
Max operating pressure (PS) Heating system	bar	6
Test pressure Heating system	bar	8.6
Max operating pressure DHW system	bar	-
Test pressure DHW system	bar	-
Max operating temperature (TS)	°C	100
Weight	kg	139

10. CTC AT 2. 1000 (3 bar)



Dimension	
A	1907
B	-
C	-
D	1560
E	1360
F	1160
G	960
H	760
I	560
J	360
K	230
L	-
M	0
N	Ø890
O	Ø1090
P	1101
Q	160



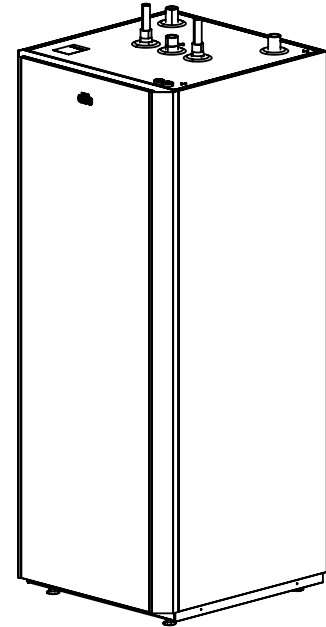
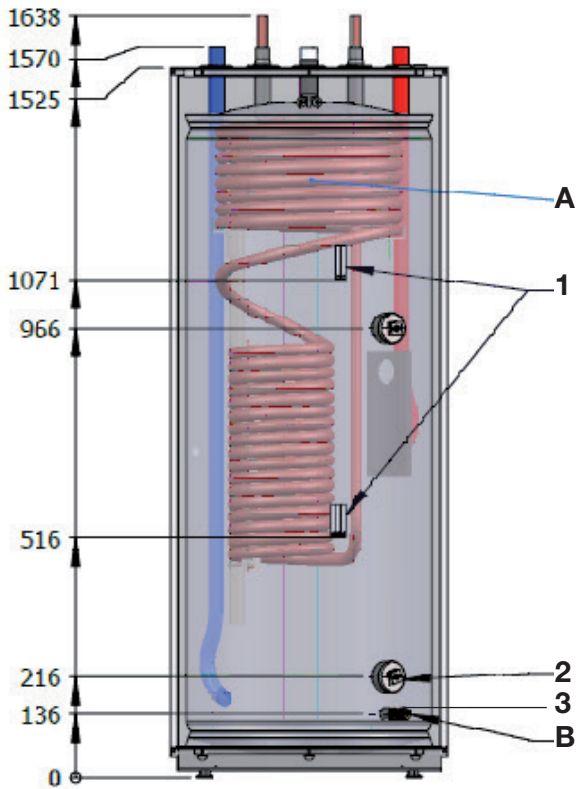
1. DN32: Expansion/Bleeding (A)

4 x DN80: Supply/Return/Immersion heater outlet (D/F/H/J)

4 x DN20: Draining/Thermometer (E/G/I/K)

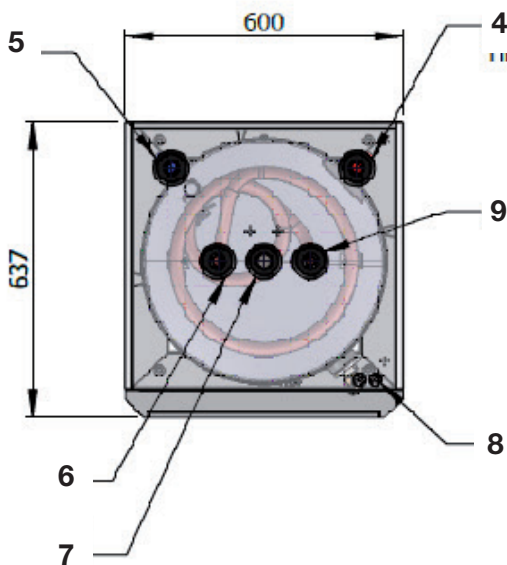
Article number		590642301
Max operating pressure (PS) Heating system	bar	3
Test pressure Heating system	bar	4.3
Max operating pressure DHW system	bar	-
Test pressure DHW system	bar	-
Max operating temperature (TS)	°C	100
Weight	kg	186

11. CTC AT 1. 300/25 (3 bar)



CONNECTIONS

1. Temperature sensor thermowell Ø7
2. Immersion heater outlet (2x)- DN50
3. Draining - DN15
4. Supply from heat source - DN25
5. Return to heat source - DN25
6. DHW connection Ø22 mm
7. Bleeding - DN25
8. Cable entry (2x)
9. Cool water Ø22

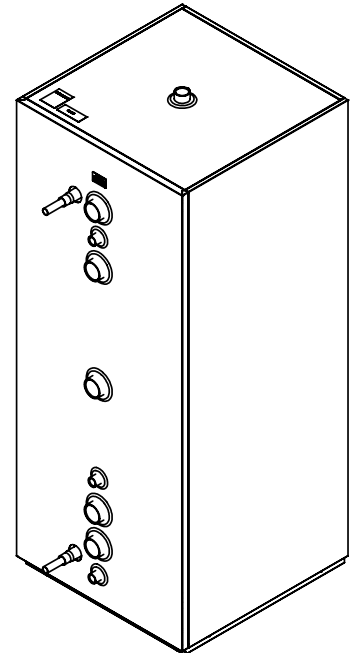
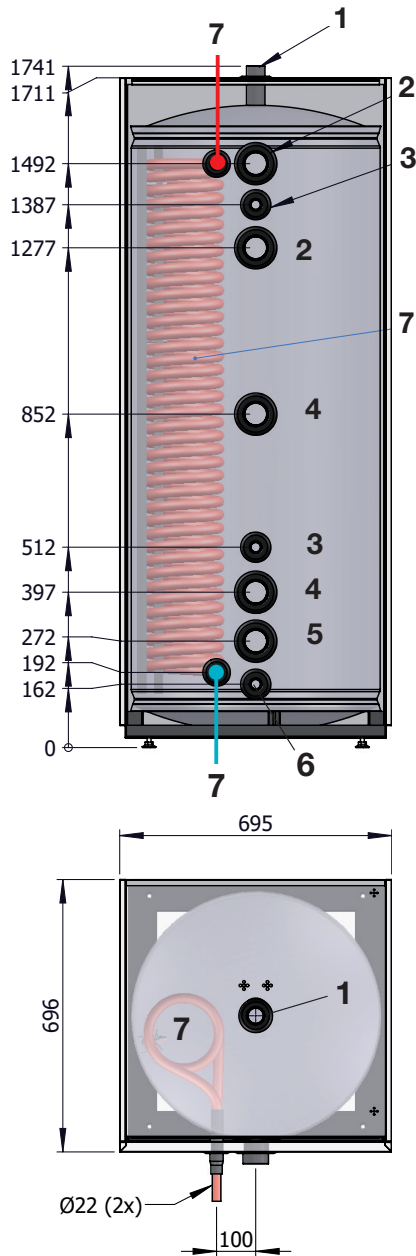


EQUIPMENT

- A. DHW-coil - Ø22
- B. Drain cock

Article number		589912001
Max operating pressure (PS) Heating system	bar	3
Test pressure Heating system	bar	4.3
Max operating pressure DHW system	bar	10
Test pressure DHW system	bar	14.3
Max operating temperature (TS)	°C	100
Weight	kg	117

12. CTC AT 1. 500/25 (3 bar)

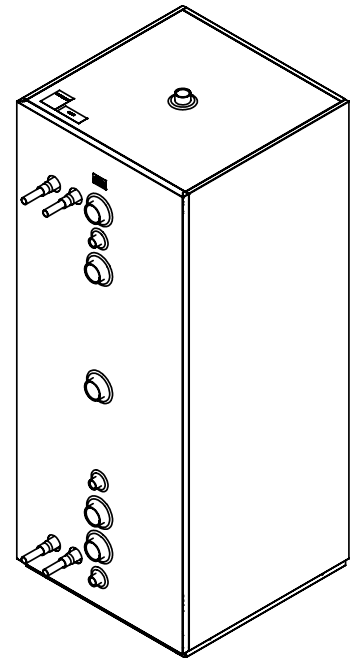
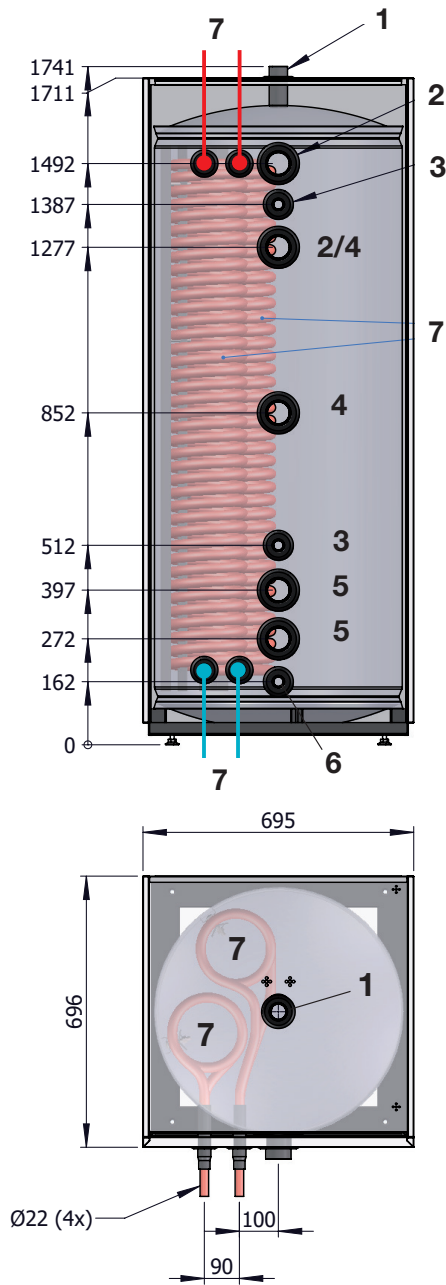


CONNECTIONS

1. Expansion/Bleeding - DN32
2. Supply from heat source - DN50
3. Thermometer - DN20
4. Immersion heater outlet - DN50
5. Return to heat source - DN50
6. Draining - DN20
7. DHW-coil - Ø22

Article number		588350301
Max operating pressure (PS) Heating system	bar	3
Test pressure Heating system	bar	4.3
Max operating pressure DHW system	bar	10
Test pressure DHW system	bar	14.3
Max operating temperature (TS)	°C	100
Weight	kg	143

13. CTC AT 1. 500/50 (3 bar)

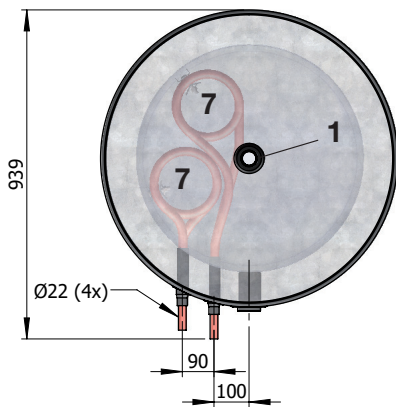
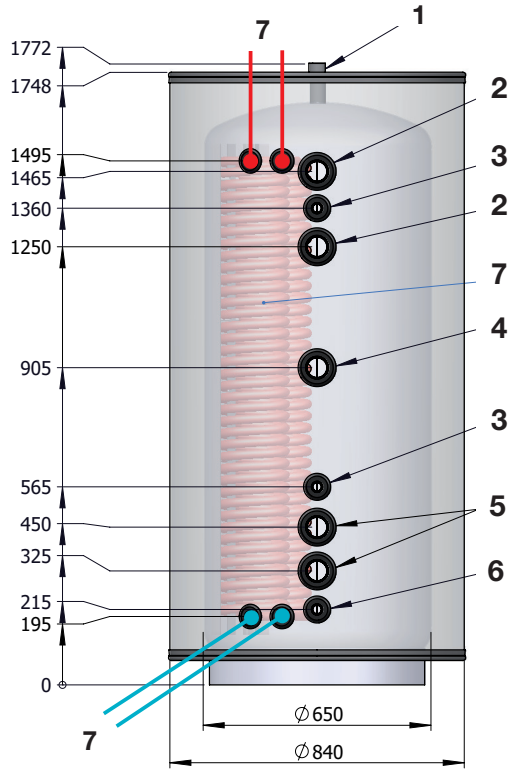


CONNECTIONS

1. Expansion/Bleeding - DN32
2. Supply from heat source - DN50
3. Thermometer - DN20
4. Immersion heater outlet - DN50
5. Return to heat source - DN50
6. Draining - DN20
7. DHW-coil - Ø22

Article number		588349301
Max operating pressure (PS) Heating system	bar	3
Test pressure Heating system	bar	4.3
Max operating pressure DHW system	bar	10
Test pressure DHW system	bar	14.3
Max operating temperature (TS)	°C	100
Weight	kg	168

14. CTC AT 1. 500/50 (6 bar)

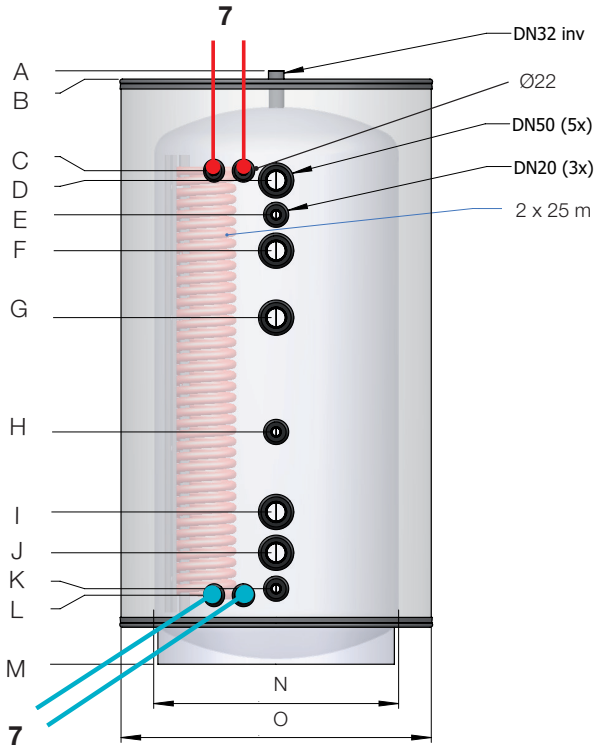


CONNECTIONS

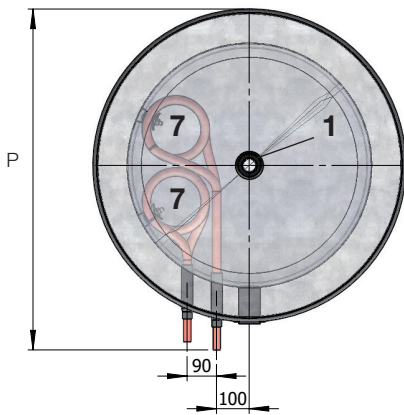
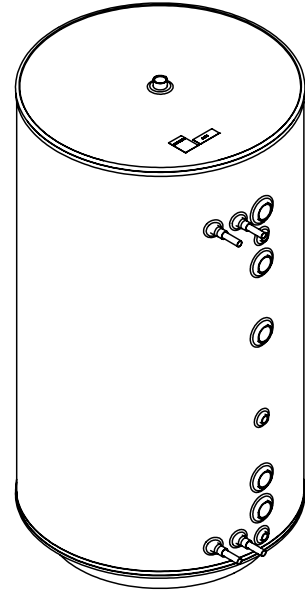
- 1. Expansion/Bleeding - DN32
- 2. Supply from heat source - DN50
- 3. Thermometer - DN20
- 4. Immersion heater outlet - DN50
- 5. Return to heat source - DN50
- 6. Draining - DN20
- 7. DHW-coil - Ø22

Article number		589900001
Max operating pressure (PS) Heating system	bar	6
Test pressure Heating system	bar	8.6
Max operating pressure DHW system	bar	10
Test pressure DHW system	bar	14.3
Max operating temperature (TS)	°C	100
Weight	kg	168

15. CTC AT 1.750/50 (3 bar)



Dimensions	
A	1810
B	1784
C	1515
D	1515
E	1410
F	1300
G	1015
H	665
I	420
J	295
K	185
L	215
M	0
N	Ø780
O	Ø960
P	1065



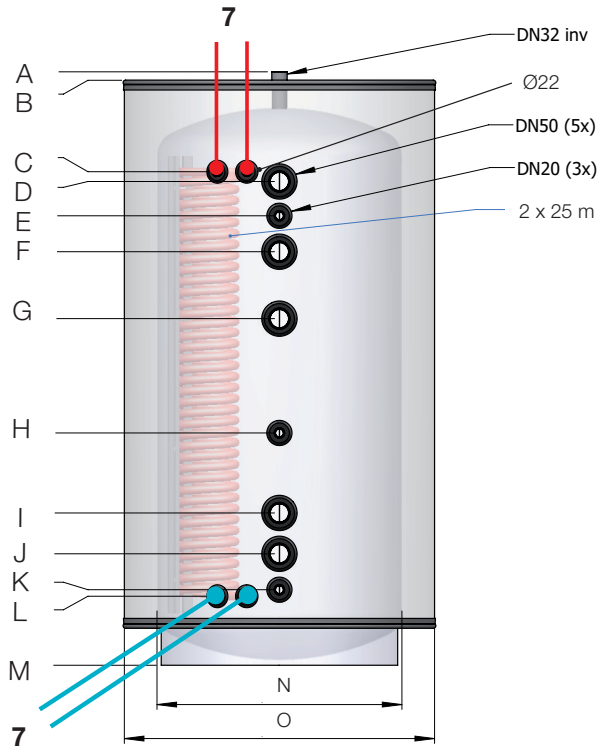
- 1. DN32: Expansion/Bleeding (A)
- 7. Ø22: DHW-coil (C/L)

5 x DN50: Supply/Return/Immersion heater outlet (D/F/G/I/J)

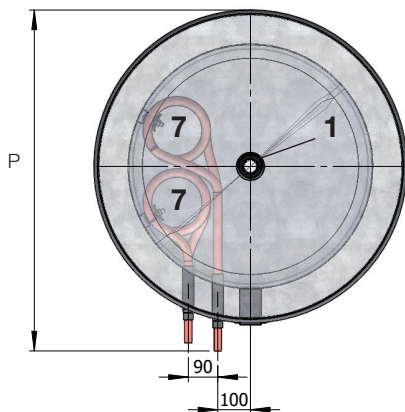
3 x DN20: Draining/Thermometer (E/H/K)

Article number		588348301
Max operating pressure (PS) Heating system	bar	3
Test pressure Heating system	bar	4.3
Max operating pressure DHW system	bar	10
Test pressure DHW system	bar	14.3
Max operating temperature (TS)	°C	100
Weight	kg	168

16. CTC AT 1. 750/50 (6 bar)



Dimensions	
A	1817
B	1791
C	1511
D	1481
E	1376
F	1266
G	1061
H	711
I	466
J	341
K	231
L	211
M	0
N	Ø750
O	Ø950
P	1044



1. DN32: Expansion/Bleeding (A)

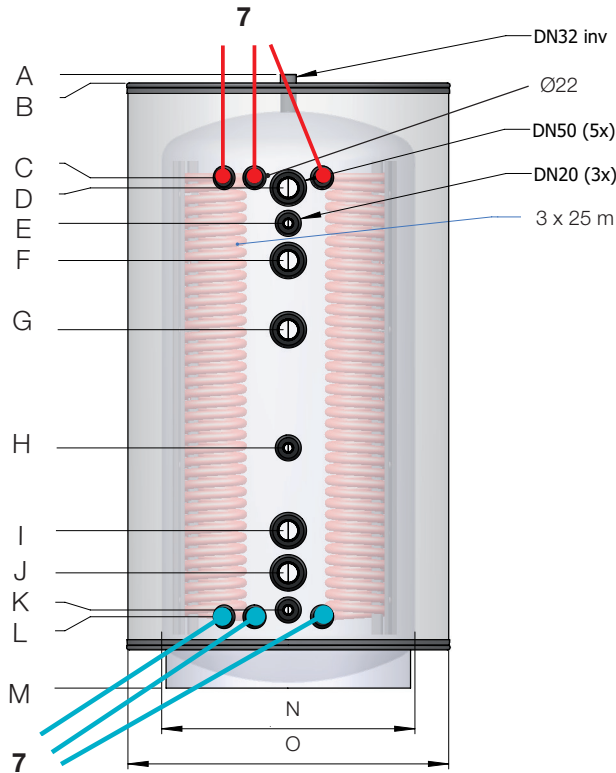
7. Ø22: DHW-coil (C/L)

5 x DN50: Supply/Return/Immersion heater outlet (D/F/G/I/J)

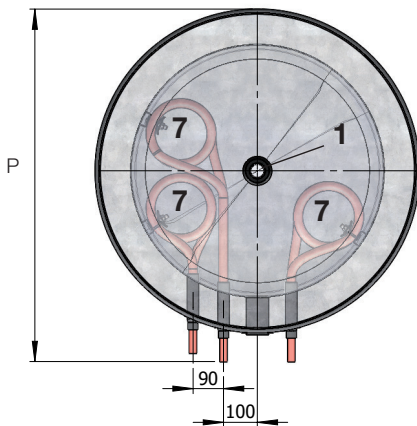
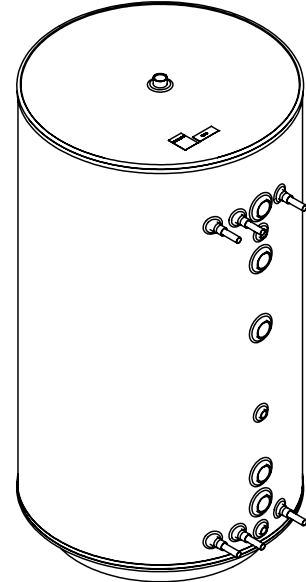
3 x DN20: Draining/Thermometer (E/H/K)

Article number		589901001
Max operating pressure (PS) Heating system	bar	6
Test pressure Heating system	bar	8.6
Max operating pressure DHW system	bar	10
Test pressure DHW system	bar	14.3
Max operating temperature (TS)	°C	100
Weight	kg	190

17. CTC AT 1. 750/75 (3 bar)



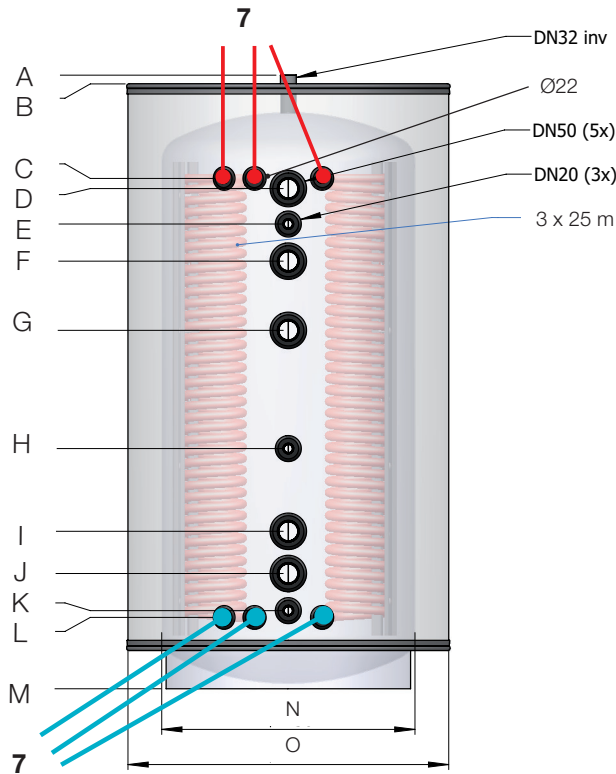
Dimensions	
A	1810
B	1784
C	1515
D	1515
E	1410
F	1300
G	1015
H	665
I	420
J	295
K	185
L	215
M	0
N	Ø780
O	Ø960
P	1065



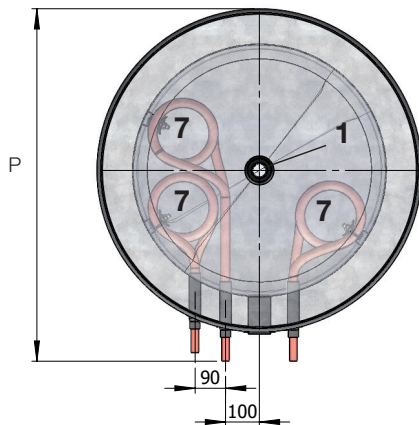
- 1. DN32: Expansion/Bleeding (A)
- 7. Ø22: DHW-coil (C/L)
- 5 x DN50: Supply/Return/Immersion heater outlet (D/F/G/I/J)
- 3 x DN20: Draining/Thermometer (E/H/K)

Article number		588347301
Max operating pressure (PS) Heating system	bar	3
Test pressure Heating system	bar	4.3
Max operating pressure DHW system	bar	10
Test pressure DHW system	bar	14.3
Max operating temperature (TS)	°C	100
Weight	kg	193

18. CTC AT 1. 750/75 (6 bar)



Dimensions	
A	1817
B	1791
C	1511
D	1481
E	1376
F	1266
G	1061
H	711
I	466
J	341
K	231
L	211
M	0
N	Ø750
O	Ø950
P	1044



1. DN32: Expansion/Bleeding (A)

7. Ø22: DHW-coil (C/L)

5 x DN50: Supply/Return/Immersion heater outlet (D/F/G/I/J)

3 x DN20: Draining/Thermometer (E/H/K)

Article number		589902001
Max operating pressure (PS) Heating system	bar	6
Test pressure Heating system	bar	8.6
Max operating pressure DHW system	bar	10
Test pressure DHW system	bar	14.3
Max operating temperature (TS)	°C	100
Weight	kg	215

