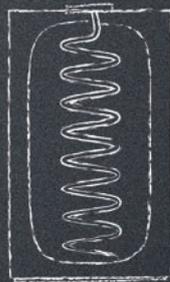


NEW

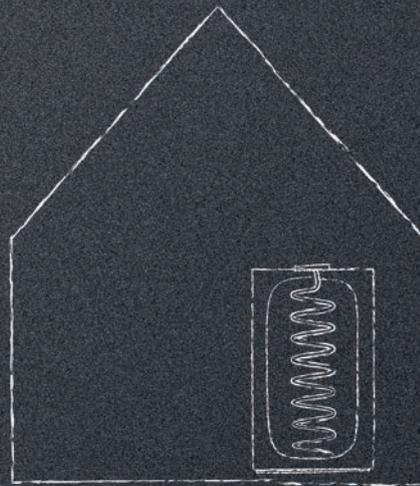
Energy systems

Thermotank Quadroline

The new generation of plastic storage tanks



Water provides a vital basis for life. It transfers heat in an environmentally friendly way and provides comfort. Roth's innovative storage tank system guarantees efficient use and a reliable supply – ensuring that we are always provided with hygienic, top-quality water.





Thermotank Quadroline

light, space-saving, variable

■ The new generation of plastic storage tanks

When it comes to using renewable energy, it is essential to choose the right storage tank for hot water and heating water to ensure efficient energy consumption.

The innovative Roth Thermotank Quadroline 325 and 500 litre models set new standards in heat storage technology – in terms of energy efficiency, lightness, space-saving design, hygiene, variable operation and resistance to corrosion. The Roth Thermotank is the world's first plastic composite heat storage tank (using fibre/plastic composite technology) to function as a pressure tank with aluminium diffusion protection. The new storage concept enables hygienically safe and forward-looking integration into the domestic drinking water system, as well as offering the possibility to use solar energy. The tank is extremely light, only around a third of the weight of a comparable conventional steel storage tank, which makes for easier transport and installation.

■ Versatility of use

Thanks to its construction, the Roth Thermotank Quadroline is versatile and can be used in customised system solutions as a stand-alone storage tank or in combination with other devices. For example, it can be used as a central unit in heating applications, as separation or buffer storage tanks, as a solar or combined storage tank or for domestic water heating. The Roth Thermotank Quadroline can be integrated directly into heating systems with a maximum continuous operating pressure of up to three bar.

Roth Thermotank Quadroline

the pressure-resistant plastic heat storage tank

- > pressure-resistant
- > diffusion-resistant
- > corrosion-free
- > compact
- > optimum temperature stratification
- > customised system solutions
- > complete unit for various applications
- > hygienic operation
- > efficient heat storage
- > light
- > modern design
- > made in Germany



■ Conveniently light with maximum temperature consistency

The Roth Thermotank Quadroline is made from a high-quality plastic composite material with aluminium diffusion protection and high-performance EPS insulation on the outside.

This material makes the tank extremely light – it weighs only around a third of the weight of a comparable conventional steel storage tank. A further advantage of this specially certified plastic material is that it is resistant to corrosion. Compared with conventional metallic storage tank materials, it is significantly more effective at reducing heat loss. This considerably improves heat storage and has a positive effect on the energy balance of the entire heating system.

The unique plastic strengthening matrix (composite) offers a high level of pressure stability. A stable outer cover made from special high-performance EPS insulation enables efficient minimisation of heat loss. The new, lightweight design of this storage tank makes installation and assembly easy – an advantage which installers are sure to appreciate.

> pressure-resistant

the world's first, unique composite Thermotank (fibre/plastic composite technology) as a pressure tank for direct integration into heating systems

> diffusion-resistant

the world's first, unique composite Thermotank with aluminium diffusion protection

> corrosion-free

on the inside and outside thanks to the plastic material

> compact

the practical shape is ideal for both renovations and new buildings

> optimum temperature stratification

an innovative stratification unit, which enables loading and extraction at the head and foot ends of the storage tank, ensures optimum temperature stratification in the storage tank. This results in optimised heat distribution, which reduces storage losses and increases efficiency while saving energy at the same time.

> customised system solutions which can be extended at any time

> **complete unit for various applications**
tank for drinking water, separation, buffer, solar or combination storage

> **hygienic operation for domestic water heating**

> **efficient heat storage**
by minimising heat losses

> **light**
for easy installation and assembly

> **modern design**
suited to the shape of the heat source

> **made in Germany**
top quality based on decades of experience in processing plastics



■ Pressure-resistance
approved by TÜV Hessen



■ **Already honoured with several awards**

The Roth Thermotank Quadroline has received the Homesolute Award in the "Environment" category and the Plus X Award for high quality, design, functionality and ecology. The jury for the Plus X Award also awarded the Quadroline the distinction of "plastic heat tank of the year" with the "Best product of the year" accolade.

The pro-K industrial association named the Thermotank Quadroline as "Product of the year 2013". This honour is awarded to outstanding products where plastic plays an instrumental role in their successful realisation with regard to innovation, design and function.

■ **Decades of "Made in Germany" manufacturing expertise**

In developing and manufacturing the Roth Thermotank Quadroline, Roth has been able to draw on decades of manufacturing expertise in processing plastics. The company has been producing tanks for various applications since 1963. Alongside energy and water, plastics is the company's key area of expertise. By the early 1970s, Roth was already moving towards plastics processing. Various plastic technologies enables the manufacturer to make use of a range of synergies in its production process. The Roth Thermotank Quadroline is also based on the company's own manufacturing know-how.



Roth Thermotank Quadroline

design-oriented and compact shape



■ Optimal use of space

The new compact shape of the Roth Thermotank Quadroline makes optimal use of every square centimetre of space. Compared to conventional round storage tanks, the new Roth Thermotank Quadroline with its rectangular design stands out thanks to its practical, space-saving external dimensions. The storage tank covers a base area of 650 x 650 mm with a storage tank volume of up to 325 litres or 780 x 780 mm for a storage tank volume of up to 500 litres. All Roth Thermotank models have removable heat insulation to permit simple handling and installation, even in difficult building locations. The hydraulic connections are flow-optimised in the upper and lower regions of the tank as an interface to the domestic installation systems.

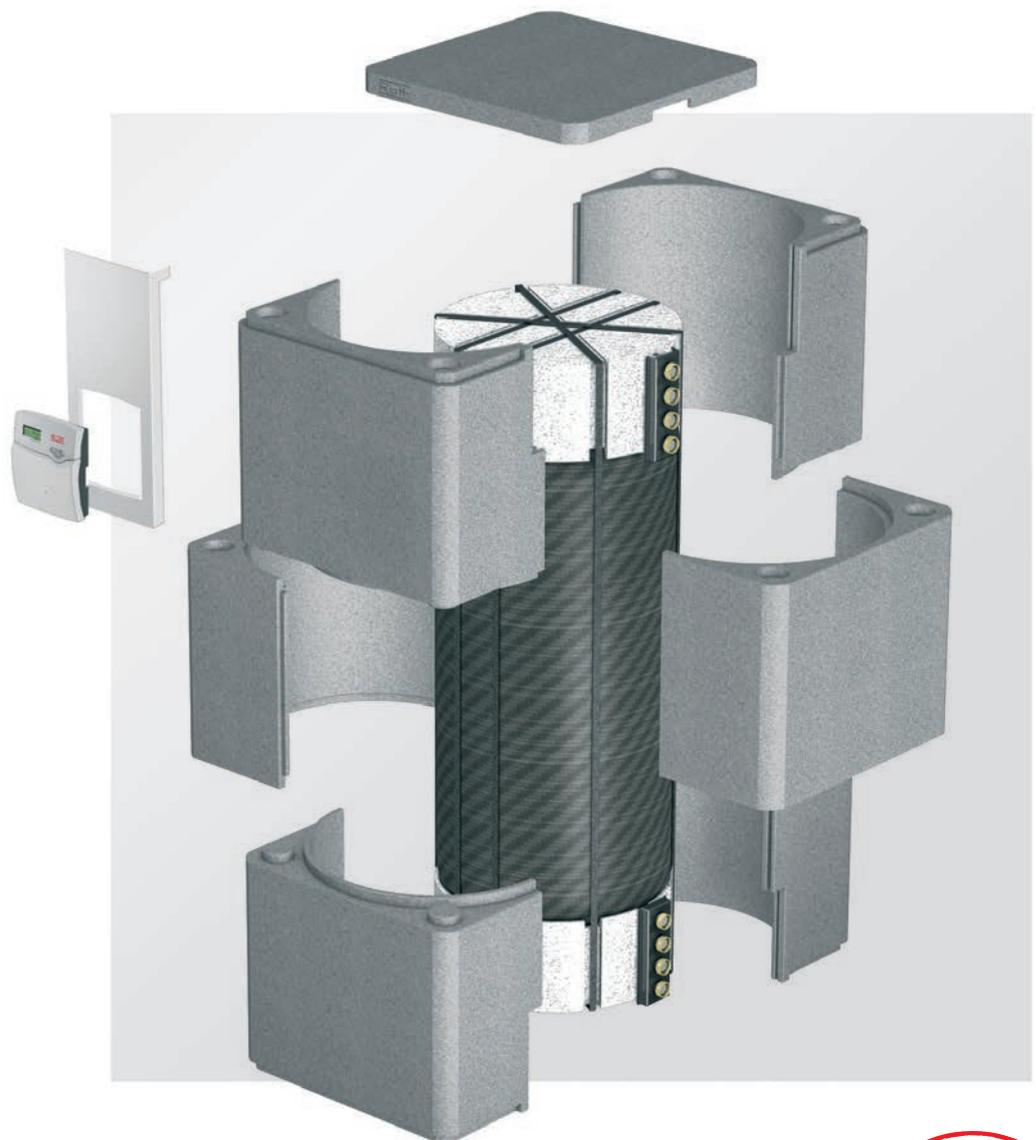
The Thermotank Quadroline fills the corner of the room with its square shape and is ideal for use in a series with other Thermotank units. Unused corners in building services rooms, which have a negative impact on the overall appearance of the building infrastructure and often become "dirt traps" over time and use, are a thing of the past thanks to the Roth Thermotank Quadroline. With its attractive design, it can be optimally integrated into domestic spaces, such as utility rooms, and looks like any other household appliance.

■ Easy to install in the cellar

Even with large volumes, the Roth Thermotank Quadroline is quite easy for two people to transport up or down steep, tight staircases or through narrow doors to get into a building. This makes it particularly ideal for use in renovation projects as well as new buildings. Thanks to the low pivot measurement, the tank can also easily be installed in cellars with a low ceiling height.

■ Design options

The basic version of the Roth Thermotank Quadroline is shown with its straightforward EPS cover in anthracite grey. The Roth Quadroline is also available with an attractive optional design panel, which is simply mounted onto the housing and can also be used for incorporating a control unit.



Hygienic storage tank for heating drinking water for versatile use

Can be used as

- > separation storage tank
- > buffer storage tank
- > solar storage tank
- > domestic water heater
- > combination storage tank



■ Optimum conditions for heating drinking water in a hygienic and efficient way

The Roth Thermotank Quadroline plastic heat storage tank is permanently rust-resistant. The water is heated only as and when required by the user, which helps ensure that the entire system operates efficiently. With the Thermotank Quadroline, Roth offers two different storage tank and system solutions for hygienic drinking water heating. On the one hand, there is the option of using a storage tank with an integrated heat exchanger made of stainless steel corrugated piping to heat drinking water in a hygienic way, based on the constant flow principle. The special shape of the stainless steel corrugated pipe helps keep the heat exchanger surface continuously free from any deposits, such as limescale. This means that the effectiveness of the heat exchanger is retained throughout the lifetime of the hot water storage tank. Alternatively, the Roth Thermotank Quadroline can be combined with the Roth fresh water station.

The hot water is heated simultaneously as required – quickly, safely and cleanly. This means that there is always fresh, warm and hygienically clean drinking water available. The energy used for heating drinking water can be supplied by various systems: these include solar systems, solid fuel boilers, conventional oil/gas boilers, heat pumps or other systems.

■ Optimum temperature stratification thanks to a perfectly designed loading and unloading system

Roth has developed a temperature stratification device geared towards optimising flow characteristics. Depending on the type of tank used, the flow is supplied from the upper/and or lower part of the storage tank.

It contains a segmented outer filling pipe with inlets and outlets for the inflow and outflow of the storage medium. Inside the filling pipe there is a further pipe with a significantly smaller diameter, which is hydraulically operated in the opposite direction depending on the usage and function of the filling pipe.

The individually adapted, segmented loading and unloading devices enable direct connection to the heat source and distribution systems as well as optimising temperature stratification within the plastic storage tank.

■ **Roth Thermotank Quadroline offers a variety of system solutions**

Depending on the application and storage requirements in question, a system solution is developed using the Roth Thermotank Quadroline. The system can thus be hydraulically adjusted to suit various different areas of application.

The Roth Thermotank Quadroline can be integrated into the domestic heating and drinking water systems in various configurations, individually or in a battery installation. The individually customised fittings of the Roth Thermotank Quadroline enable it to be used as a buffer or separation storage tank, as a hygienic domestic drinking water heater based on the constant flow principle, or as a combination storage tank for more complex systems.

The storage system can be expanded at any time and thereby permits the connection of additional components that may be required due to subsequent conversion or retrofitting of building technology equipment – for example the subsequent installation of a solar or heat pump system.

■ **Making use of funding**

As part of a market incentive programme, the German Federal Ministry for the Environment boosted its funding support for heat storage tanks combined with heat pumps.

Buffer, solar, domestic water and combination storage tanks are eligible for an additional EUR 500 on top of basic funding if a minimum volume of 30 litres per kw of heat output is achieved (status as at December 2012). Up-to-date information on funding in Germany is available at www.bafa.de.

■ **Buffer storage tank** ■ **Separation storage tank** ■ **Solar storage tank**

■ **Domestic water heater** ■ **Domestic water heater with solar energy facility** ■ **Combination storage tank**

Storage tank temperature change as a function of heat loss in standby mode

Time in days	Thermotank 325 litres (°C)	Thermotank 500 litres (°C)
1	90.00	90.00
2	85.00	85.00
3	80.00	80.00
4	75.00	75.00
5	70.00	70.00
6	65.00	65.00
7	60.00	60.00
8	55.00	55.00
9	50.00	50.00
10	45.00	45.00
11	40.00	40.00
12	35.00	35.00
13	30.00	30.00
14	25.00	25.00
15	20.00	20.00
16	15.00	15.00
17	10.00	10.00
18	5.00	5.00
19	0.00	0.00
20	-5.00	-5.00

— Thermotank 325 litres
— Thermotank 500 litres

Roth Thermotank Quadroline

buffer storage tank

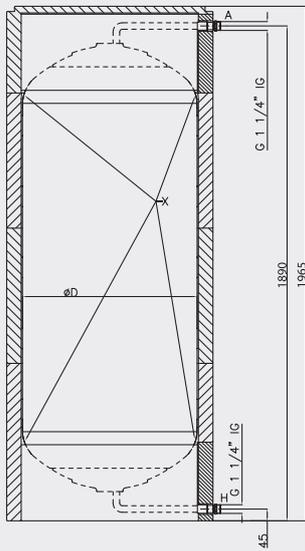
Functionality of a buffer storage tank

A buffer storage tank evens out the time-related and hydraulic differences between the quantity of heat generated at the quantity required. This results in improved efficiency and optimal operation of the entire system, especially when using renewable energy generators.

Roth buffer storage tank

- > can be used as a storage tank based on a constant flow principle
- > comes with two sensor sleeves for connecting up to four sensors
- > high-quality removable hard foam insulation
- > optional design panel



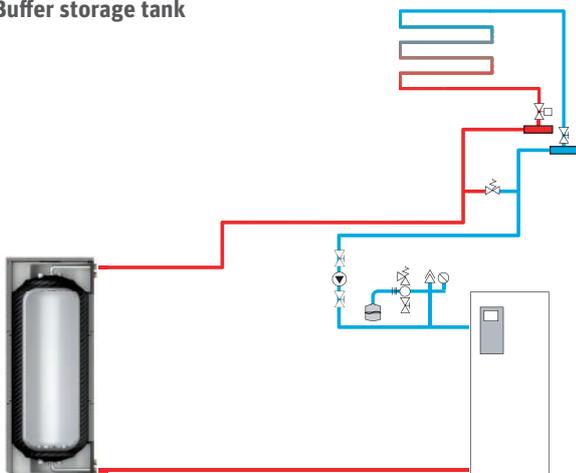


- A Heating supply (outlet)
- H Heat source supply (inlet)
- X Sensor sleeve (4 units)

Technical data Type		TQ-P 325	TQ-P 500
Design options		Buffer storage tank	
Description	Unit		
Insulation external dimensions			
Length/width	mm	650 x 650	780 x 780
Height	mm	1965	1965
Installation size			
Diameter D	mm	547	677
Height	mm	1935	1935
Pivot measurement	mm	2030	2070
Net tank capacity	Litres	325	500
Approx. weight	kg	40	50
Max. continuous tank temperature	°C	90	90
Max. cont. operating pres.	bar	3	3
Max. tank test pressure/ 20 °C*	bar	4,5	4,5

* Testing permitted with water only

■ Buffer storage tank



Heat source with Thermotank Quadroline buffer storage tank, no domestic water heating, underfloor heating with buffer storage tank for increasing volume

Roth Thermotank Quadroline

separation storage tank

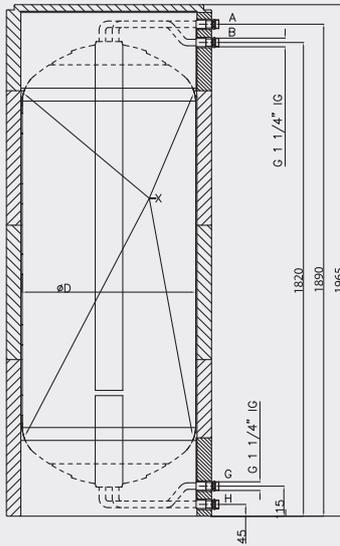
Functionality of a separation storage tank

Separation storage tanks are ideal for hydraulically separation heat source circuits and heating circuits. It functions based on the principle of what is known as a hydraulic separator.

Roth separation storage tank

- > integrated stratified charge system for optimum temperature stratification
- > hydraulic separation of heat source and heating circuits
- > comes with two sensor sleeves for connecting up to four sensors
- > high-quality removable hard foam insulation
- > optional design panel



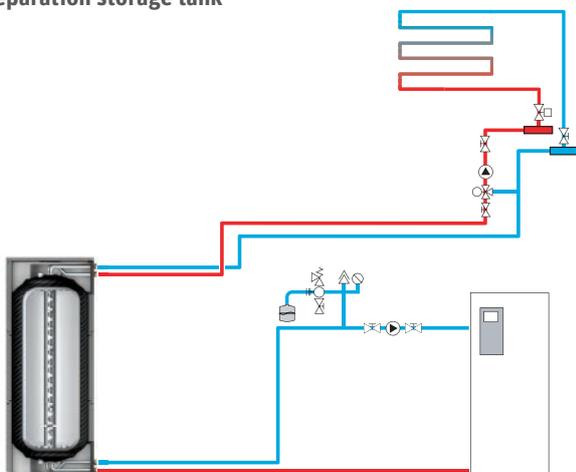


- A Heating return
- B Heating supply
- G Heat source return
- H Heat source supply
- X Sensor sleeve (4 units)

Technical data Type		TQ-T 325	TQ-T 500
Design options		Separation storage tank	
Description	Unit		
Insulation external dimensions			
Length/width	mm	650 x 650	780 x 780
Height	mm	1965	1965
Installation size			
Diameter D	mm	547	677
Height	mm	1935	1935
Pivot measurement	mm	2030	2070
Net tank capacity	Litres	325	500
Approx. weight	kg	40	50
Max. continuous tank temperature	°C	90	90
Max. cont. operating pres.	bar	3	3
Max. tank test pressure/ 20 °C*	bar	4,5	4,5

* Testing permitted with water only

■ Separation storage tank



Heat source with Thermotank Quadroline separation storage tank, no domestic water heating, underfloor heating via separation storage tank (hydraulic separator)

Roth Thermotank Quadroline

solar storage tank

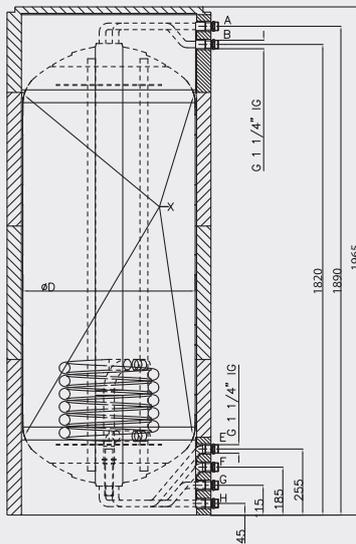
Functionality of a solar storage tank

Solar energy is stored temporarily in the solar storage tank to be used for heating water and supporting the heating system – this ensures that the energy is ready and available for use even when the sun is not shining outside.

Roth solar storage tank

- > high-performance stainless steel heat exchanger
- > integrated stratified charge system for optimum temperature stratification
- > hydraulic separation of heat source and heating circuits
- > comes with two sensor sleeves for connecting up to four sensors
- > high-quality removable hard foam insulation
- > optional design panel
- > no drinking water storage tank



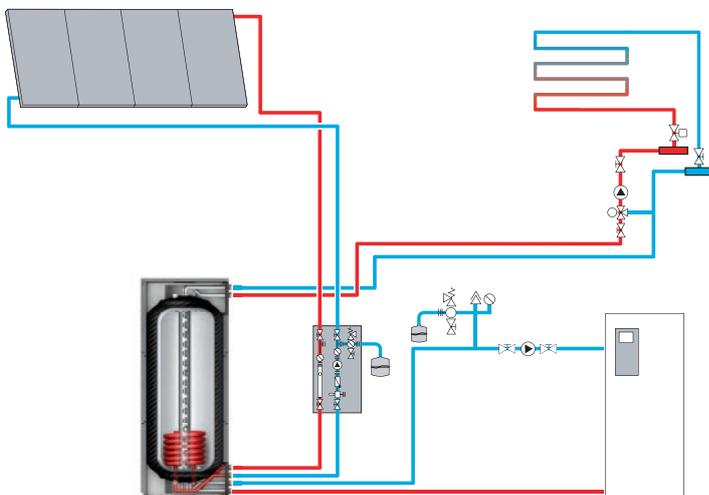


- A Heating return
- B Heating supply
- E Solar heat exchanger supply (inlet)
- F Solar heat exchanger return (outlet)
- G Heat source return
- H Heat source supply
- X Sensor sleeve (4 units)

Technical data Type		TQ-S 325	TQ-S 500
Design options		Solar storage tank	
Description	Unit		
Insulation external dimensions			
Length/width	mm	650 x 650	780 x 780
Height	mm	1965	1965
Installation size			
Diameter D	mm	547	677
Height	mm	1935	1935
Pivot measurement	mm	2030	2070
Net tank capacity	Litres	310,5	485,5
Approx. weight	kg	52	62
Max. continuous tank temperature	°C	90	90
Max. cont. operating pres.	bar	3	3
Max. tank test pressure/ 20 °C*	bar	4,5	4,5
Solar heat exchanger			
Output area	m ²	1,5	1,5
Max. operating pressure	bar	10	10
Capacity	Litres	8	8
Max. collector area	m ²	12,5	12,5

* Testing permitted with water only

■ Solar storage tank



Heat source with Thermotank Quadroline solar storage tank, no domestic water heating, solar heating support, underfloor heating via separation storage tank (hydraulic separator)

Roth Thermotank Quadroline

domestic water heater

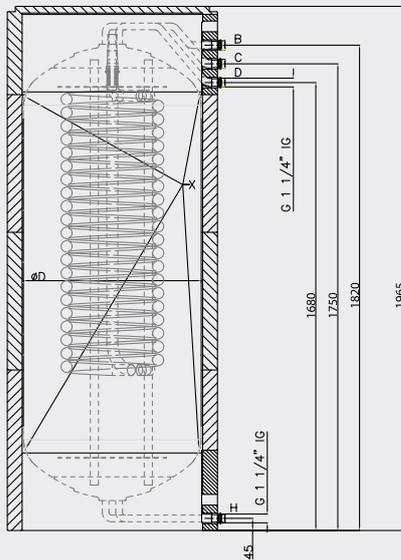
Functionality of a domestic water heater

Hygienic storage tanks are used to heat domestic drinking water based on a constant flow principle. A high-performance stainless steel heat exchanger is integrated into the system for heating drinking water.



Roth domestic water heater

- > hygienic storage tank/domestic water heater based on the constant flow principle
- > high-performance stainless steel heat exchanger
- > integrated stratified charge system for optimum temperature stratification
- > hydraulic separation of heat source and heating circuits
- > comes with two sensor sleeves for connecting up to four sensors
- > high-quality removable hard foam insulation
- > optional design panel

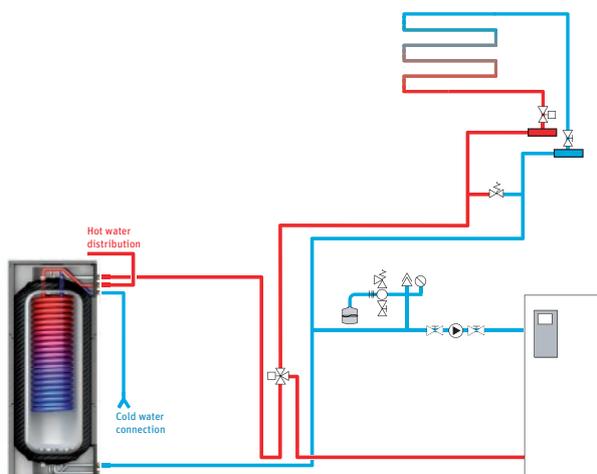


- B Heat source supply, domestic water
- C Hot water outlet
- D Cold water inlet
- H Heat source return, domestic water
- X Sensor sleeve (4 units)

Technical data Type		TQ-TW 325	TQ-TW 500
Design options		Domestic water heater	
Description	Unit		
Insulation external dimensions			
Length/width	mm	650 x 650	780 x 780
Height	mm	1965	1965
Installation size			
Diameter D	mm	547	677
Height	mm	1935	1935
Pivot measurement	mm	2030	2070
Net tank capacity	Litres	302,5	478,5
Approx. weight	kg	65	74
Max. continuous tank temperature	°C	90	90
Max. cont. operating pres.	bar	3	3
Max. tank test pressure/ 20 °C*	bar	4,5	4,5
Hot water heat exchanger, output values according to DIN 4708-3			
Output area	m ²	5	5
Max. operating pressure	bar	10	10
Approx. capacity	Litres	26	26
Tapping rate (20 litres/min.), approx.	Litres	295	497
Output coeff. N ₁ , approx.		2,8	4,3
Connection height	mm	1750	1750

* Testing permitted with water only

■ Domestic water heater



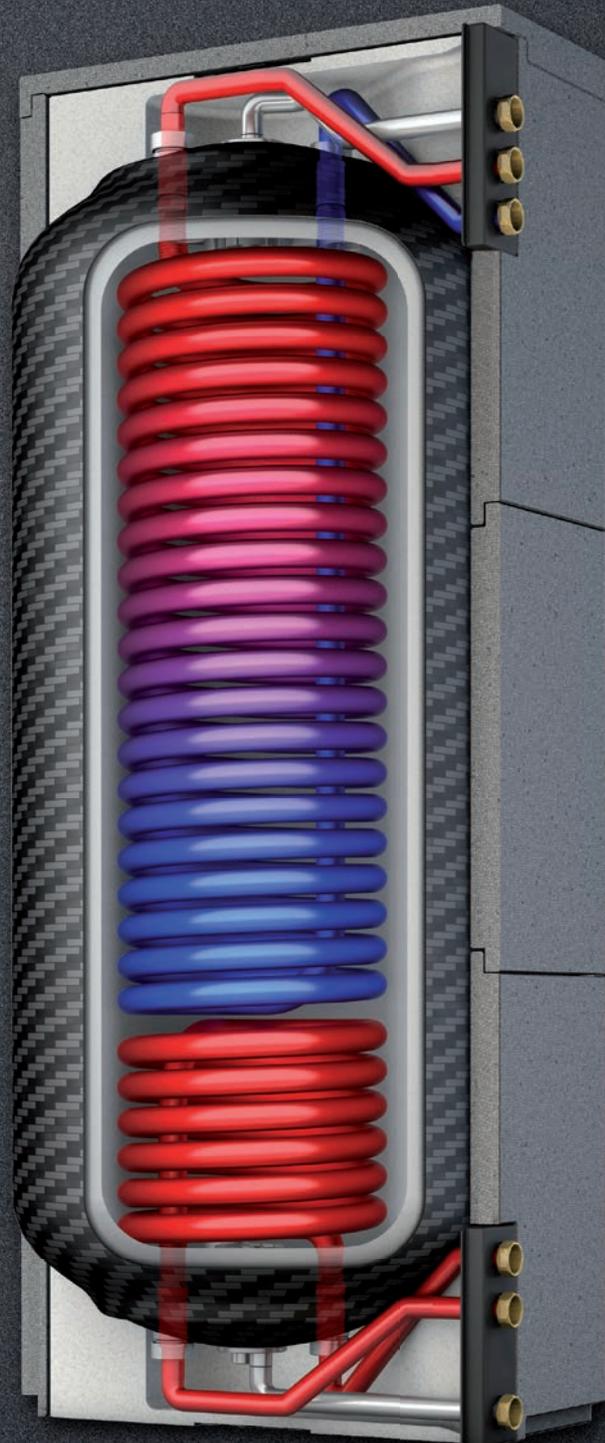
Heat source with Thermotank Quadroline domestic water heater, underfloor heating

Roth Thermotank Quadroline

domestic water heater with solar energy facility

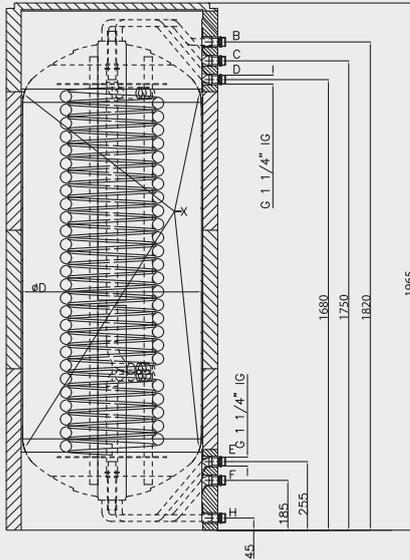
Functionality of a domestic water heater with solar energy facility

Hygienic storage tanks are used to heat domestic drinking water based on a constant flow principle. A high-performance stainless steel heat exchanger is integrated into the system for heating domestic water. Domestic water heaters with a solar energy facility offer the possibility of integrating a solar energy system.



Roth domestic water heater with solar energy facility

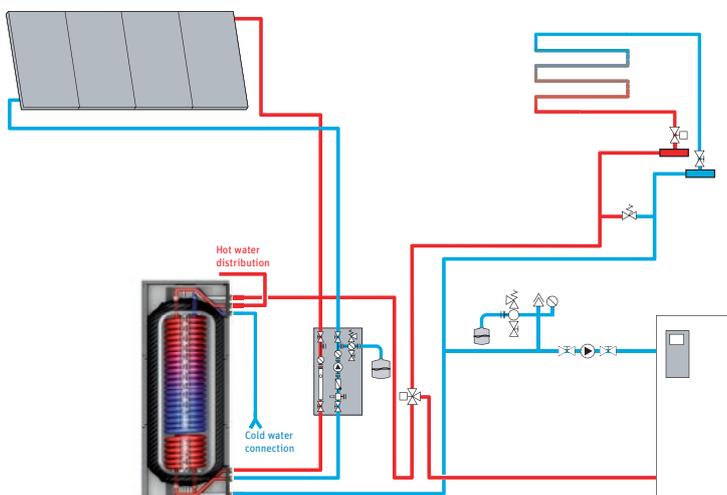
- > hygienic storage tank/domestic water heater based on the constant flow principle
- > two high-performance stainless steel heat exchangers for drinking water and solar energy
- > integrated stratified charge system for optimum temperature stratification
- > comes with two sensor sleeves for connecting up to four sensors
- > high-quality removable hard foam insulation
- > optional design panel



- B Heat source supply
- C Hot water outlet
- D Cold water inlet
- E Solar heat exchanger supply (inlet)
- F Solar heat exchanger return (outlet)
- H Heat source return
- X Sensor sleeve (4 units)

Technical data Type		TQ-TWS 325	TQ-TWS 500
Design options		Domestic water heater with solar	Domestic water heater with solar
Description	Unit		
Insulation external dimensions			
Length/width	mm	650 x 650	780 x 780
Height	mm	1965	1965
Installation size			
Diameter D	mm	547	677
Height	mm	1935	1935
Pivot measurement	mm	2030	2070
Net tank capacity	Litres	292	468
Approx. weight	kg	72	81
Max. continuous tank temperature	°C	90	90
Max. cont. operating pres.	bar	3	3
Max. tank test pressure/ 20 °C*	bar	4,5	4,5
Solar heat exchanger			
Output area	m ²	1,5	1,5
Max. operating pressure	bar	10	10
Capacity	Litres	8	8
Max. collector area	m ²	12,5	12,5
Hot water heat exchanger, output values according to DIN 4708-3			
Output area	m ²	5	5
Max. operating pressure	bar	10	10
Approx. capacity	Litres	26	26
Tapping rate (20 litres/min.), approx.	Litres	295	497
Output coeff. N _L , appr.**		2,8	4,3
Connection height	mm	1750	1750

■ Domestic water heater with solar energy facility



Heat source with Thermotank Quadroline domestic water heater with solar energy facility, solar heating of drinking water, underfloor heating

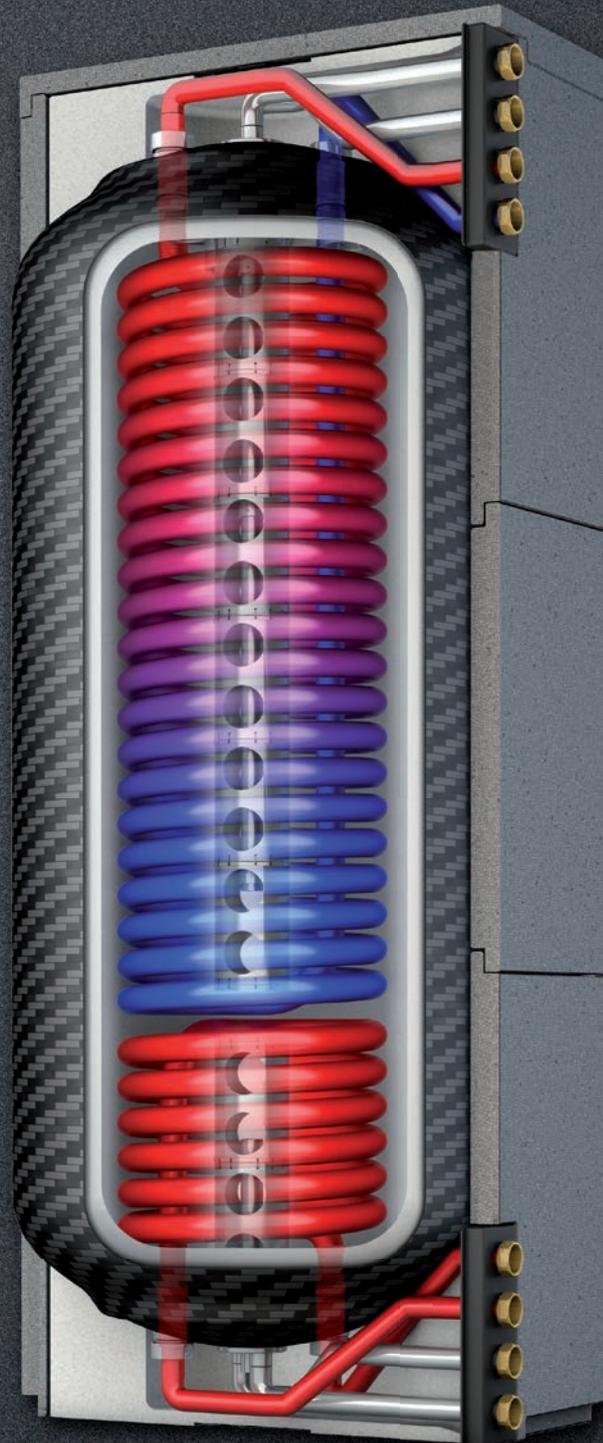
* Testing permitted with water only
 ** N_L figures in accordance with DIN 4708-3 for 20 l/min and a tapping temperature of 45 °C.
 Subject to technical modifications

Roth Thermotank Quadroline

combination storage tank

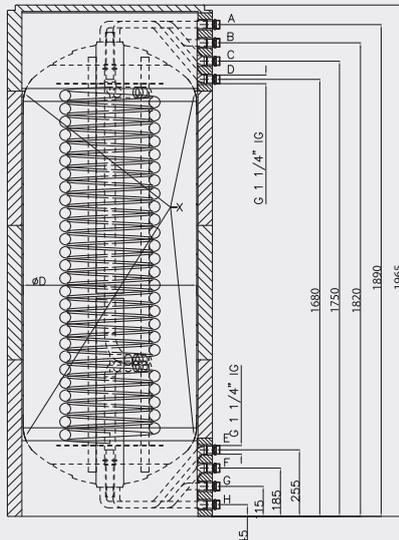
Functionality of a combination storage tank

A combination storage tank combines the functions of a buffer storage tank and a hot water storage tank in a single system. Its construction is based on a two-tank system. The buffer storage tank stockpiles the solar energy supplied by the collectors and the hot water storage tank provides hygienic drinking water.



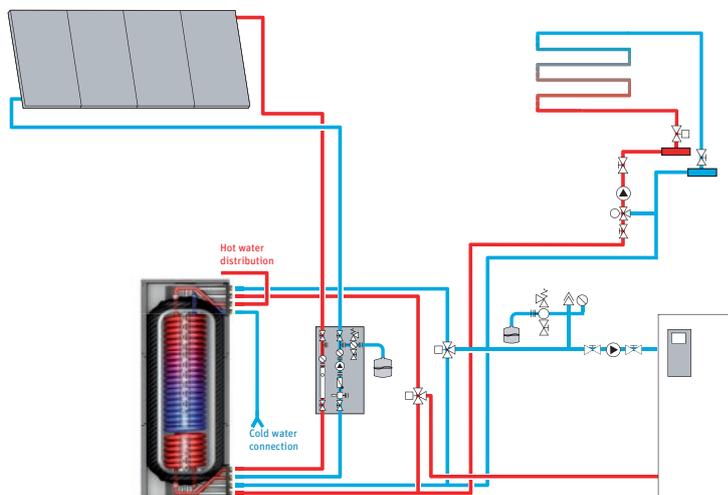
Roth combination storage tank

- > hygienic storage tank/domestic water heater based on the constant flow principle
- > two high-performance stainless steel heat exchangers for drinking water and solar energy
- > integrated stratified charge system for optimum temperature stratification
- > comes with two sensor sleeves for connecting up to four sensors
- > high-quality removable hard foam insulation
- > optional design panel



- A Heat source return, domestic water
- B Heat source supply, domestic water
- C Hot water outlet
- D Cold water inlet
- E Solar heat exchanger supply (inlet)
- F Solar heat exchanger return (outlet)
- G Heating return
- H Heating supply
- X Sensor sleeve (4 units)

■ Combination storage tank



Heat source with Thermotank Quadroline combination storage tank, solar heating of drinking water and solar heating supply, underfloor heating

Technical data		TQ-K 500
Type		
Design options		Combination storage tank
Description	Unit	
Insulation external dimensions		
Length/width	mm	780 x 780
Height	mm	1965
Installation size		
Diameter D	mm	677
Height	mm	1935
Pivot measurement	mm	2070
Net tank capacity	Litres	468
Approx. weight	kg	81
Max. continuous tank temperature	°C	90
Max. cont. operating pres.	bar	3
Max. tank test pressure/ 20 °C*	bar	4,5
Solar heat exchanger		
Output area	m ²	1,5
Max. operating pressure	bar	10
Capacity	Litres	8
Max. collector area	m ²	12,5
Hot water heat exchanger, output values according to DIN 4708-3		
Output area	m ²	5
Max. operating pressure	bar	10
Approx. capacity	Litres	26
Tapping rate (20 litres/min.), approx.	Litres	374
Output coeff. N _v , approx.		2,5
Connection height	mm	1750

* Testing permitted with water only

Impressive technology

■ The corrosion-resistant Roth Thermotank Quadroline is made from a unique plastic composite material with aluminium diffusion protection and high-performance EPS insulation on the outside. It can withstand continuous pressure of 3 bar and a maximum operating temperature of 90 °C.

Roth Thermotanks are equipped with specially developed loading and extraction units which enable defined temperature stratification and application-specific extraction. Depending on their use, they feature a stainless steel corrugated pipe, which enables:

- > hygienic water heating based on the constant flow principle,
- > hygienic water heating based on the constant flow principle combined with heating system support,
- > heating system support,
- > integration of solar energy systems.

Roth Thermotanks also come with a transport and handling device. This, combined with the tanks' extremely light weight, makes installation and assembly easy. The Thermotank Quadroline's highly effective thermal insulation consists of high-quality hard foam segments which can be fitted onto the tank. These foam segments have a low thermal conductivity and a high-quality surface finish. Their square shape enables the Roth Thermotanks to be installed flush against the wall to save space, as well as offering the option of applying a design panel.

The Roth Thermotank Quadroline is fully equipped with piping and ready for connection, with the connecting pipes fixed into special elements at the head and foot ends. The interfaces for the respective system connections are located in the middle of the upper and lower insulation segments in the form of 1 1/4" connections. These have been optimised to prevent heat loss due to unwanted circulation. The connections are fed out through the insulation and positioned in a panel. The Roth Thermotank Quadroline is fitted with attachments for connecting four sensors, which can be positioned according to the application in question.



Our strengths

Your benefits

Innovation

- > Early identification of market requirements
- > In-house materials research and development
- > In-house engineering

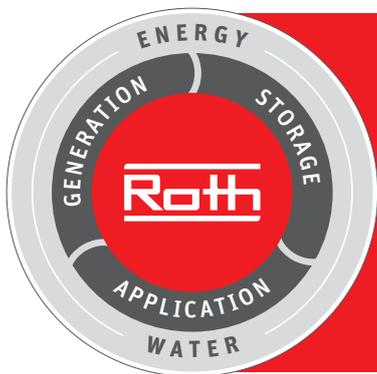
Service

- > Extensive field network of qualified sales professionals
- > Hotline and project planning service
- > Factory training courses, planning and product seminars
- > Fast availability of all Roth brand product ranges throughout Europe
- > Comprehensive warranty and extended liability agreements

Products

- > Complete range of easy-to-install product systems
- > Manufacturing expertise for the complete product range within the Roth Industries group of companies
- > All products and product systems are certified in accordance with DIN EN ISO 9001:2008





Roth energy and sanitary systems

Generation

- > Solar systems
- > Heat pump systems
- > Solar heat pump systems

Storage

- Storage systems for
- > Drinking and heating water
 - > Combustibles and biofuels
 - > Rainwater and waste water

Application

- > Floor heating and cooling systems
- > Pipe installation systems
- > Shower systems

Roth

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