

ROTEX Sanicube: Combination of Hot water storage tank and Instantaneous heater.



## **ROTEX Sanicube -**

The hygienic hot water storage tank.



**ROTEX**  
The heating!

# Hygienic hot water – as much as you want.

## True home comfort

Hot and fresh water is indispensable for every household. Whether for showering, bathing, cooking or hand washing. Having hot water available in the desired volume and at the desired temperature is a significant constituent of our modern life. The fact that this water is also hygienic is, of course, a prerequisite.

Conventional water heaters often fail to meet these requirements today.

## Highest levels of water comfort

We have therefore placed special emphasis on water hygiene! The ROTEX Sanicube was conceived in accordance with the latest thermal technology and water hygiene requirements. Its structure is fundamentally different from normal large volume hot water storage tanks. The ROTEX Sanicube combines the advantages of the instantaneous water heater with those of a heat storage facility. Its design concept ensures that it conveniently provides, at all times, hygienic hot water.



### ROTEX Sanicube The high performance hot water storage tank

- Optimum water hygiene
- High comfort

## Structure and function

### Clear separation of Domestic hot water and storage tank water

The ROTEX Sanicube is a combination of hot water storage tank and instantaneous water heater. This means that the actual heat is not stored in the domestic water itself, but in the storage tank water which is clearly separated from it. The volume of the stored domestic water is relatively small and is 19-29 litres, depending upon the type of storage tank.

On the other hand, the total storage tank volume is 300 and 500 litres. This amount of heat that can be stored and also removed is accordingly large.

### Heat storage and Instantaneous heater

The storage tank water is added at commissioning and serves only for heat storage. It is not exchanged and consumed.

The storage tank itself is made entirely of plastic, the inner and outer walls are impact-resistant polypropylene (PP), the space in-between is filled with highly heat insulating foam. This provides for very good heat insulation values and minimum surface losses.



The heating of the storage tank water, and thus the charging of the storage tank, can take place in various ways:

- With heating water (oil, gas, solid fuel boilers, heat pump or remote heat) via the stainless steel heat exchanger.
- With solar energy, direct heating of the storage tank water via the ROTEX Solaris system.
- With an electric immersion heater (2.4 or 6 or 12 kW).

The hot water (domestic) is heated in a corrugated tube heat exchanger made of stainless steel which is immersed in the storage tank water.

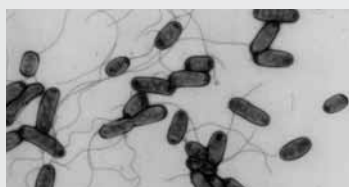
# Water hygiene is our principle.

## The anti-legionella storage tank.

The structure of the ROTEX Sanicube ensures that it has optimum inherent water-hygienic properties since the water to be heated is ducted and heated through a stainless steel corrugated tube heat exchanger system.

Low flow sections or sections that are not heated properly on the hot water side are completely eliminated using the ROTEX Sanicube. The domestic hot water is entirely contained in a piping system so that the deposits such as sediment, rust or other deposits which can arise in large volume tanks are not produced. Water that is charged first is also the first to be removed (first-in first-out principle). The water hygienic advantages of the ROTEX Sanicube are thus considerable.

The outstanding water-hygienic advantages have been confirmed by an extensive test undertaken by the Hygiene Institute at the University of Tübingen.



### Keyword: Legionella

#### Legionella bacteria

There are about 35 types of Legionella. At least 17 of these produce illness.

The main consequences are:  
Pontiac fever: flu-like symptoms which subside after a few days.  
Legionnaire's disease: severe bacterial lung infection.

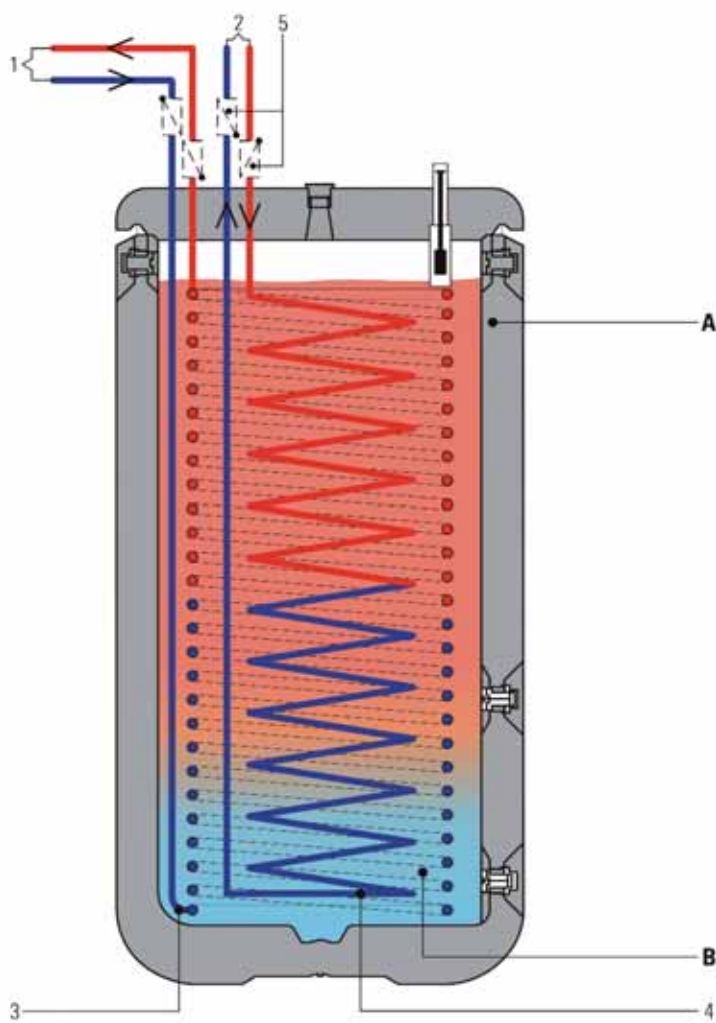
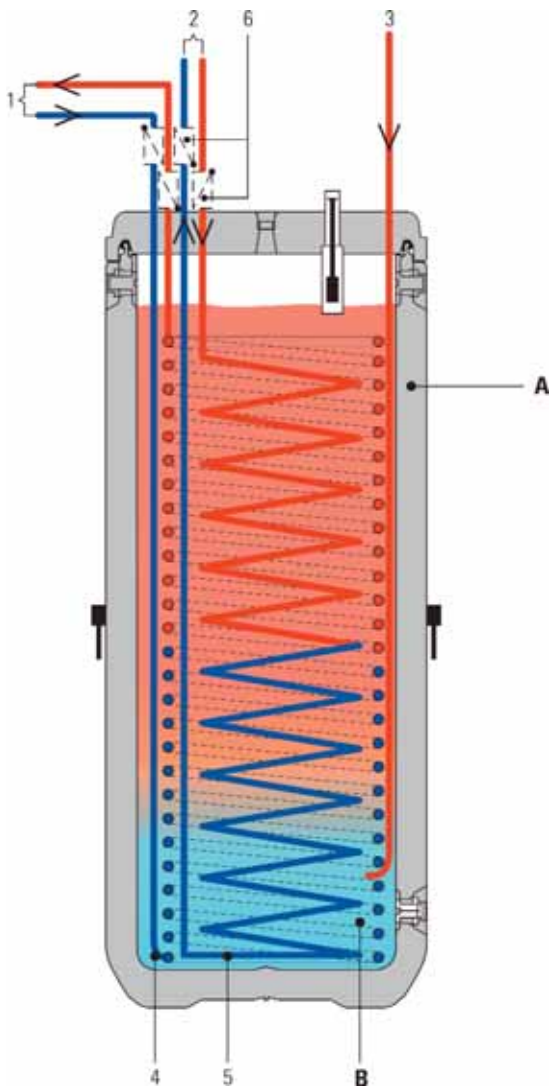
In 15 to 20 percent of the cases the infection leads to death.

## Experience makes a good product

ROTEX have been making hot water storage tanks according to this principle for 25 years to provide optimum water hygiene. All generations of storage tank have been designed to ensure that the heated domestic water only stays in the storage tank for short periods of time. This means that deposits (lime, sediment or rust) can not arise in the domestic hot water.

The Sanicube was continuously developed on the basis of these intentions.





- A Hot water stratified storage tank
- B Pressure-free storage tank water
- 1 Domestic hot water
- 2 Storage tank primary loading coil
- 3 Solaris connection
- 4 Domestic water heat exchanger (stainless steel)
- 5 Storage tank primary loading heat exchanger (stainless steel)
- 6 Non Return valves (accessories)

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### The Sanicube principle

On the Sanicube INOX, the heat exchanger which contains the domestic hot water is made of stainless steel (INOX). It is the high efficiency version and operates at all times as a stratified storage tank. This means that it can produce maximum hot water at the same storage tank temperature.

The pronounced temperature stratification makes the Sanicube Solaris INOX ideal as a stratified storage tank in combination with the unpressurised ROTEX Solaris installation.





## Energy saving with a capital E.

A significant measure for the evaluation of a hot water storage tank is the surface heat loss.

The storage tank material (PP) and the all-round heat insulation using PU foam keep these heat losses to a minimum.

At an average storage tank temperature of 58 °C and an ambient temperature of 20 °C, the heat loss is just 82 W, this corresponds to a temperature loss in the storage tank water of just 3.5 degrees per day.

The heat energy consumption for hot water preparation is thus low. This saves precious energy.

## Low scaling

On commissioning, the storage tank is filled with tap water without the use of additives. This water serves as the heat storage medium and is not exchanged during operation. Thus, on the storage water side, the lime contained in the water can only be deposited once. All the heat exchanger pipes in the storage tank therefore remain free of limescale,

as does the electric immersion heater, which is available as an option.



Hot water storage tank Sanicube Mini and oil condensing boiler ROTEXA1

In addition, on the inner surface of the heat exchanger pipes, there is only a low tendency to scaling because of the high flow speeds when water is removed. If you are in a very hard water area it may be advisable to fit a physical water softener in front of the Sanicube.

## Modulating storage tank system

The ROTEX Sanicube can also cover larger demands for hot water. For this application several ROTEX Sanicube storage tanks can be combined together. This means that storage tank and output capacities of virtually unlimited size can be created.

On the heating and hot water side the individual Sanicube storage tanks can be combined to produce even output distribution (reverse return principle).

Further information concerning large-scale installations can be obtained from the separate brochure "ROTEX Sanicube - hygienic high-efficiency hot water systems".

## ROTEX Sanicube Solaris - Solar energy for hot water and heating

In combination with the unpressurised solar system ROTEX Solaris the free power of the sun is utilised in a highly efficient manner:

- for hot water preparation
- for heating support
- with the lowest possible heat losses
- minimum maintenance expenditure
- with perfect water hygiene
- and practical unlimited hot water comfort.

Further information can be obtained from the brochure ROTEX Solaris.

## ROTEX HybridCube® – The special heat pump storage tank

We developed the HybridCube® specially for the ROTEX HPSU air-water heat pump. It is the heart of the ROTEX heat pump system. It stores the heat obtained and then transfers it to the heating system at the required time.



For further information, refer to the ROTEX HeatPumpSolarUnit brochure.

## Long-life and safe

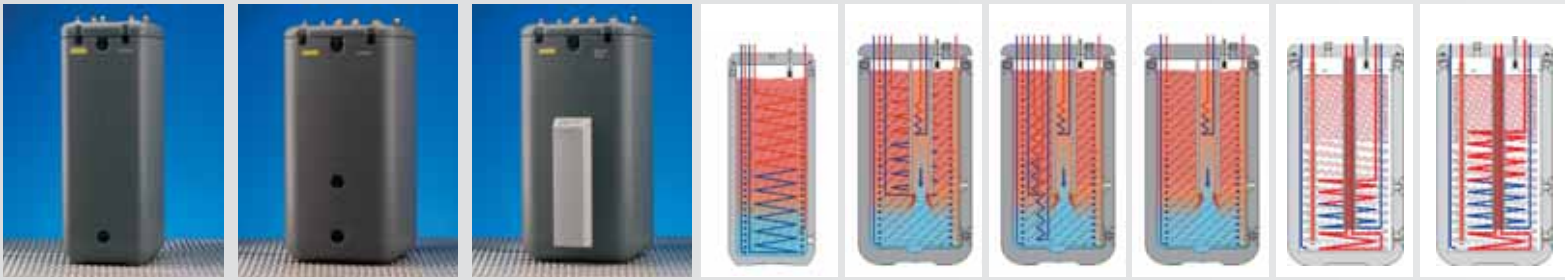
Hot water hygiene and hot water comfort are elementary requirements for us all. We should not have to compromise on these requirements.

ROTEX Sanicube meets these demands with no limitations. The materials used (plastic and stainless steel) ensure the ROTEX Sanicube has a long life and will provide hygienic hot water for decades.

**Sanicube Solaris** **HybridCube**

**Technical data Sanicube and Sanicube Solaris**

		SCS 328/14/0	SCS 538/16/0	SCS 538/16/16	SCS 538/0/0	HYC 544/19/0	HYC 544/32/0
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<b>Basic data</b>							
Total storage capacity	Litres	300	500	500	500	500	500
Empty weight	kg	55	87	93	81	86	92
Total filled weight	kg	335	587	593	581	586	592
Dimensions (L x B x H)	cm	59,5 x 61,5 x 159	79 x 79 x 159	79 x 79 x 159	79 x 79 x 159	79 x 79 x 159	79 x 79 x 159
Max. permissible storage tank water temperature	°C	85	85	85	85	85	85
Readiness heat consumption at 60 °C	kWh/24h	1,3	1,4	1,4	1,4	1,4	1,4

<b>Domestic hot water heating</b>							
Domestic hot water capacity	Litres	19	24,5	24,5	24,5	28,4	28,4
Maximum operating pressure	bar	6	6	6	6	6	6
Domestic hot water heat exchanger material		stainless steel	stainless steel	stainless steel	stainless steel	stainless steel	stainless steel
Domestic hot water heat exchanger surface	m <sup>2</sup>	4,1	5,5	5,5	5,5	5,9	5,9
Average specific heat capacity	W/K	1820	2470	2470	2470	2860	2860

<b>Storage tank primary loading heat exchanger (stainless steel)</b>							
Water capacity heat exchanger	Litres	9,1	10,4	10,4	–	9,5	17,4
Surface area primary heat exchanger	m <sup>2</sup>	2,1	2,3	2,3	–	2,0	3,7
Average specific heat capacity	W/K	910	1040	1040	–	960	1810

<b>Storage tank secondary loading heat exchanger 2 (stainless steel)</b>							
Water capacity heat exchanger	Litres	–	–	10,4	–	–	–
Surface area secondary heat exchanger	m <sup>2</sup>	–	–	2,3	–	–	–
Average specific heat capacity	W/K	–	–	1040	–	–	–

<b>Solar heating support (stainless steel)</b>							
Water capacity heat exchanger	Litres	–	2	2	2	4,8	4,8
Heat exchanger surface area	m <sup>2</sup>	–	0,4	0,4	0,4	1,0	1,0
Average specific heat capacity	W/K	–	200	200	200	310	310

<b>Thermal output data</b>							
Output characteristic value N <sub>L</sub> according to DIN 4708 <sup>1)</sup>		2,2	2,3	2,5	2,3	–	–
Continuous rating Q <sub>D</sub> according to DIN 4708	kW	27	35	45	35	–	–
Max. draw-off rate for a period of 10 min at 35 kW at (T <sub>KW</sub> = 10 °C/T <sub>WW</sub> = 40 °C/T <sub>SP</sub> = 60 °C)	l/min	21	22	24	22	–	–
Hot water quantity without reheating up to 15 l/min tapping rate (T <sub>KW</sub> = 10 °C/T <sub>WW</sub> = 40 °C/T <sub>SP</sub> = 60 °C)	Litres	200	220	220	220	–	–
Hot water volume with heating up at a power rating of 20 kW and 15 l/min draw-off rate (T <sub>KW</sub> = 10 °C/T <sub>WW</sub> = 40 °C/T <sub>SP</sub> = 60 °C)	Litres	400	442	453	442	–	–
Kurzzeitwassermenge in 10 min	Litres	210	220	240	220	–	–



<b>Thermal output data ROTEX HybridCube*</b>							
Volume of hot water without reheating at 8 l/min / 12 l/min draw-off rate (TKW = 10 °C/TWW = 40 °C/TSP = 50 °C)	Litres	–	–	–	–	338 / 272	338 / 272
Volume of hot water without reheating at 8 l/min / 12 l/min draw-off rate (TKW = 10 °C/TWW = 40 °C/TSP = 60 °C)	Litres	–	–	–	–	527 / 468	527 / 468
Volume of hot water without reheating at 8 l/min / 12 l/min draw-off rate (TKW = 10 °C/TWW = 40 °C/TSP = 65 °C)	Litres	–	–	–	–	614 / 560	614 / 560
Min. reheating time draw-off volume 140 l -> 5820 Wh (tapping one bathtub)	min	–	–	–	–	45	25
Min. reheating time draw-off volume 90 l -> 3660 Wh (tapping one shower)	min	–	–	–	–	30	17

<b>Pipe connections</b>							
Cold and hot water	Inch	1" AG	1" AG	1" AG	1" AG	1" AG	1" AG
Heating flow and return flow	Inch	1" AG	1" AG	1" AG	1" AG	1" AG	1" AG

<sup>1)</sup> at charging with 35 kW, 80 °C flow temperature, 65 °C storage tank temperature 45 °C hot water temperature and 10 °C cold water temperature

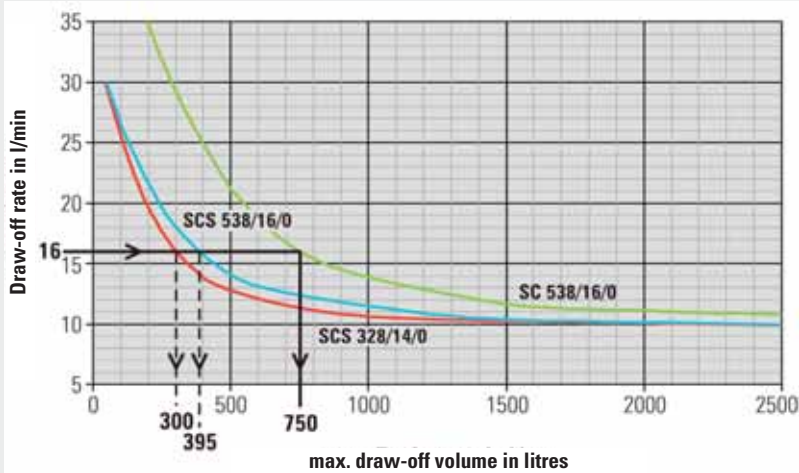
**\* Definition:**  
**DHWV** = The volume of hot water available without further heating and the volume of draw-off at a mixed water temperature of 40 °C and a cold water temperature of 10 °C.

**Reheating time** = The time required to reheat the hot water storage tank to a storage tank temperature of 50 °C after removing a specified volume of hot water.

Sanicube	
SC 538/16/0	SC 538/16/16
	
500	500
84	90
584	590
79 x 79 x 159	79 x 79 x 159
1,4	1,4

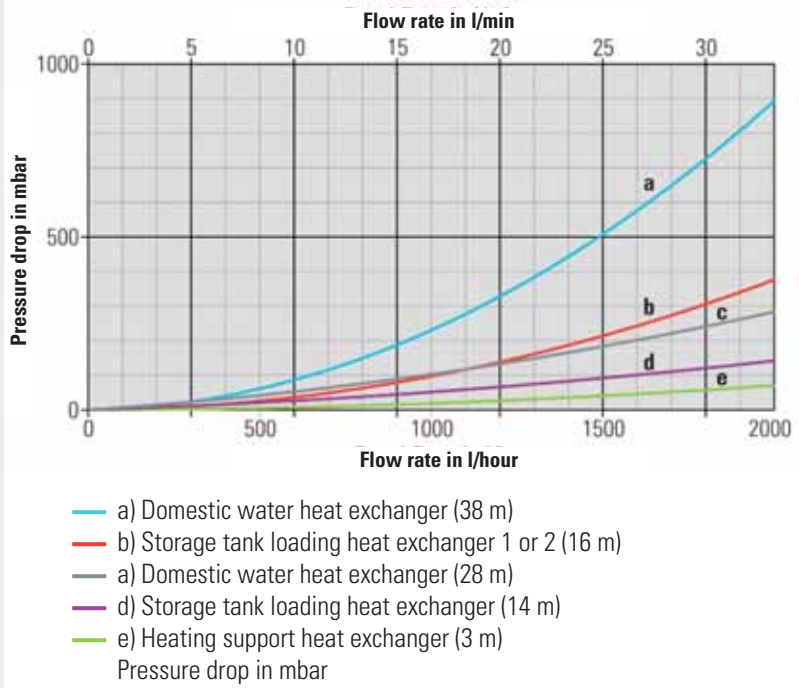
24,5	24,5
6	6
stainless steel	stainless steel
5,5	5,5
2470	2470
10,4	10,4
2,3	2,3
1040	1040
–	10,4
–	2,3
–	1040
–	–
–	–
–	–
4,1	4,4
35	50
30	31
412	412
837	843
300	310

–	–
–	–
–	–
–	–
–	–
–	–
1" AG	1" AG
1" AG	1" AG

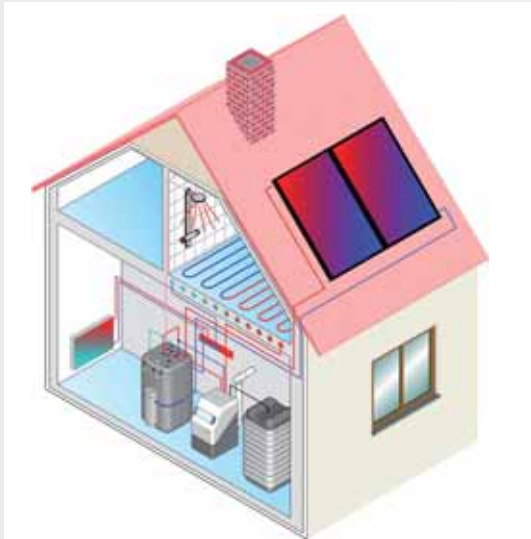


**Hot water output with respect to draw-off rate**

- Storage tank temperature 60 °C
- Draw-off temperature 40 °C
- Boiler output 20 kW
- Cold water temperature 10 °C



**Pressure drop characteristic curve for the heat exchanger**



**Connection drawing for the ROTEX Solaris System for hot water preparation with heating support: with ROTEX A1 Oil condensing boiler**



# ROTEX EcoHybrid® – the complete heating system.

## What is EcoHybrid®?

The word "hybrid" originates from Greek and means "mixed, from two different origins". A hybrid heating system allows the different types of energy to work together, such as heat pumps and solar energy, but also allows other types of energy to be integrated, such as oil, gas, pellet, or even log burning boilers. This means you are equipped to face any contingencies in the future. Consistent use of renewable energies and efficiency that is practically impossible to surpass.

## Everything from a single source

ROTEX manufactures all the important system components for the EcoHybrid® heating system itself. This means you can rely on the fact that all components are optimally made to work together and thus guarantee the greatest energy efficiency and highest level of comfort. As a system manufacturer for know-how in development and manufacturing, ROTEX stands for decades of system experience. Your heating is our profession!

## ROTEX EcoHybrid® – variable and extendable

Regardless of the way in which you start using hybrid technology today, the good thing about the EcoHybrid® is that you can extend the system at a later date.

## ROTEX EcoHybrid® – Safety and comfort for your future!

### The entire system from a single source:

- Modern calorific value technology
- Regenerative air / water heat pump
- Thermal solar plant for heating and hot water
- Hygienic hot water storage tank
- Cosy underfloor heating system
- Odour-locked safety heating oil tank
- A plastic pipework connection system suitable for both domestic water and heating installations.

You can find additional information at [www.rotex.de](http://www.rotex.de).



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