

**HAASE**

# **HOTWATERTANK**



**Clean and economical energy storage system for hot and chilled water**

Manufactured in Germany

## The Haase company

Haase was initially established in 1961 and developed the revolutionary oil storage tank, introducing a completely new concept in oil storage. This product is known for changing the market and is still sold nowadays, with many tens of thousands installed tanks.

Mr. Harry Haase, the owner and founder of the company, is a pioneer in fibre glass tanks, constructing storage tanks up to 1.500.000 l. He designed and built state of the art manufacturing machines giving us the lead in this type of industry.

Our Haase team consists of a group of dedicated members with many years of experience. In our last 50 years of operation more than 200,000 tanks have been manufactured which shows our competence and innovation in the field of tank construction.



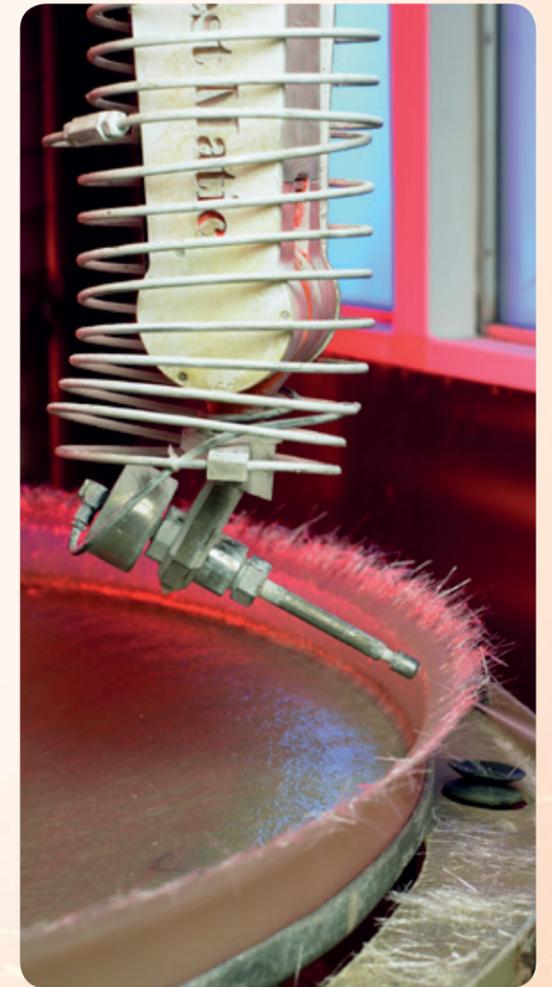
The basic material used is glass fibre reinforced plastic and due to our inhouse technology and developments we are able to introduce most efficient and reliable products. One of these products is our Haase hot water tank. This tank offers all the advantages that come with non metal tanks, such as low energy losses, no corrosion and ease of handling.

# HAASE



Our factory is located near Dresden where we utilise the latest technology to manufacture our tanks from raw materials. We developed and built the sheet manufacturing plant inhouse which makes us completely independent, allowing us to quickly adapt to individual requirements. Our selection of raw materials is very strict and we only use high quality components from reputable companies. Our continuous quality assurance procedure ensures the highest standard of our finished products.

Haase products are sold and installed around the world. Together with our local partners we can provide the right product for the individual project. Our Haase hot water tank is mostly used in the field of hot water, as well a chilled water due to the low energy loss and non corrosive behaviour.



# The Haase hot water tank

## Heat transfer technology

One of the main advantages of our indirect system is the elimination of an additional heat exchanger for primary heat sources. This design results in a much more efficient heat transfer, especially in the low temperature range such as heat pump application. A recent study, using the same primary heat source, operating once with a separate heat exchanger and then direct, without the use of a heat exchanger, resulted in an increase of temperature supply in the hot water.

In addition we utilise this principle for multiple heat sources, which can operate simultaneously. An example is the use of solar, heat recovery and boiler, all at once, utilising the surplus energy, when available, at the same time calling on the boiler to supply the top up energy, if needed. We have many of these systems in operation and actual experience in this field for over 20 years, covering the area from Hawaii to the Phillipines.

Some of the outstanding advantages of the Haase hot water tank are:

- First in - first out principle on hot water ensures no mixing of stale water
- Non metallic inner and outer container
- Non pressurized container
- Low heat loss
- Individual design to adapt to individual projects
- Resistant up to 95 °C
- Built on-site for easy access
- Stainless corrugated heat exchanger
- Multiple heat sources
- Multiple pressure zones for secondary water

Multiple heat sources

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## The principle

Haase hot water tanks consist of an inner tank of high-quality GRP (glass fibre reinforced plastics) and a thermal insulation that it is in turn protected to the outside by a GRP wall. Depending on the needs the Haase hot water tank is provided with internal corrugated stainless steel heat exchangers or prepared with flanges for external heat exchangers.



## Specifications of the Haase hot water tank

Specific feature:  
Storage medium:  
Max. temperature:  
Max. pressure of the energy tank:  
loading and unloading system:

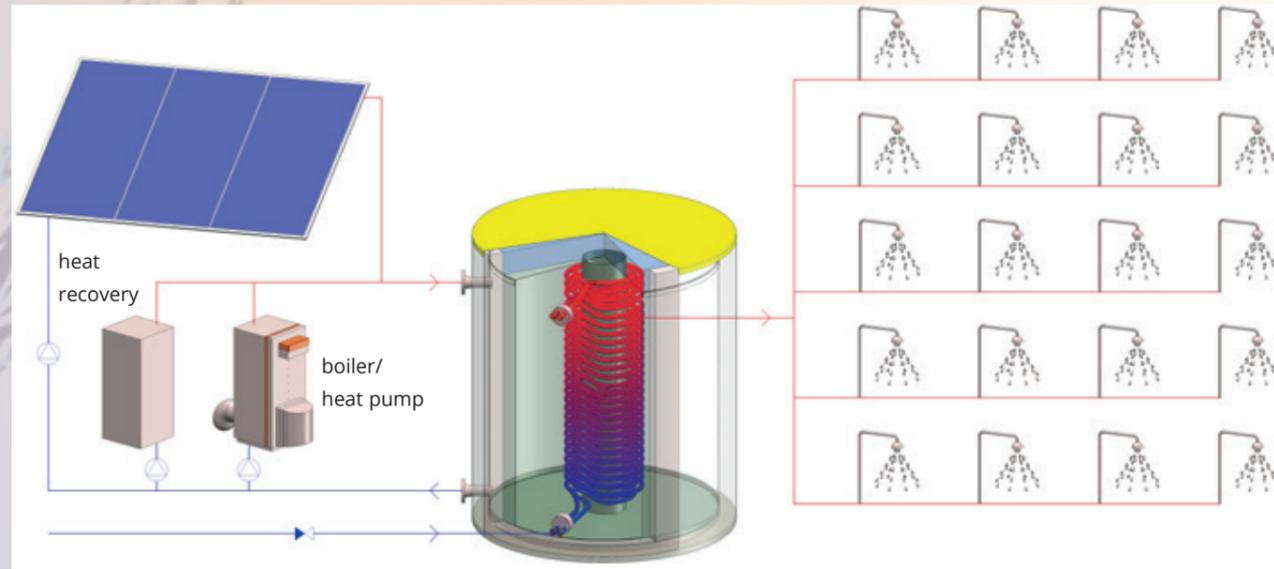
on-site assembling possibly  
water  
95 °C  
only unpressurized operation possible  
- internal high-grade steel corrugated pipes (1 1/2" flat sealing, max. 6 bar)  
- stratification loading and unloading system (with external heat exchangers)  
- flanges (with external heat exchangers)



Thermal conductivity of used materials

Material	Usage	Thermal conductivity in [W/(m*K)]
Mineral wool	Cover and wall insulation	0,040
Styrodur	Bottom insulation	0,034
High-grade steel	Heat exchangers	15,000
Glass fibre reinforced plastics	Tank material	0,197
For comparison: steel	Tank material (other producers)	48 to 58

## Example of how a Haase hot water tank can be tied into a system



## Small enough to fit through doorways - big in the basement



The Haase hot water tank is delivered in individual components and assembled on-site. Narrow doors or stairs are no longer a problem, thanks also the light weight of GRP.



The Haase hot water tanks are available in widths from 1,3 m to 4,4 m and heights from 1,7 m to 10,0 m.

## Broad application range:

The variable design of the Haase hot water tank enables a number of applications. The thermal energy can come from diverse sources (solar systems, solid fuel boilers, oil or gas boilers, waste heat, heat pumps, etc.), be stored, and the tank can also be used as a cold storage unit. The charging and discharging can be via flanges, internal heat exchangers or a stratification system.



## The material glass fibre reinforced plastic (GRP)

Due to the combination of various source materials, GRP offers outstanding properties and is therefore used for a number of applications. GRP provides the following properties:

- corrosion resistance
- ageing resistance, weather resistance
- low specific weight while maintaining high mechanical characteristic values
- temperature resistance
- GRP can be subsequently modified according to individual requirements, e.g. laminating of flanges
- low thermal conductivity and high thermal insulation



Singapore



Hawaii,  
USA



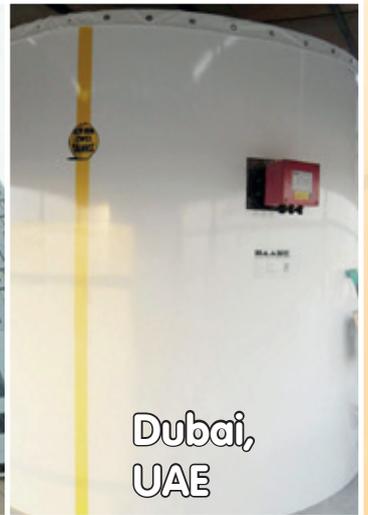
Neapel,  
Italy



Münster,  
Germany



Melaka,  
Malaysia



Dubai,  
UAE

Installation sites of Haase tanks

