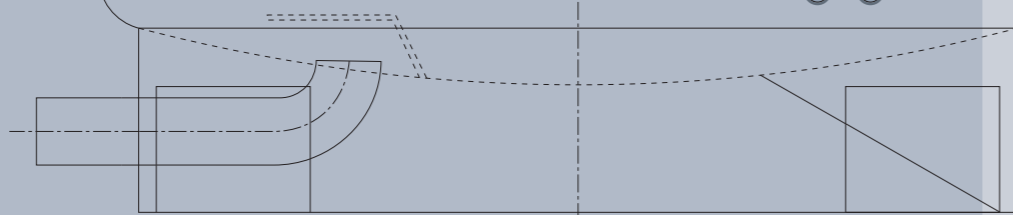
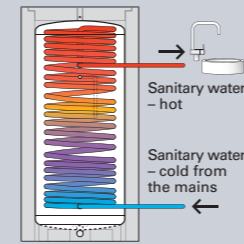


Performance-orientated heat generation requires groundbreaking HEAT MANAGEMENT



The benefit for you: Hot sanitary water at all times

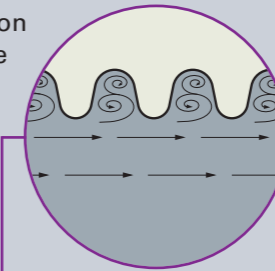
Inside the storage unit a stainless steel corrugated pipe provides the sanitary fresh water heating. The corrugated pipe (sanitary boiler) is ideally installed in the heat accumulator helically according to physical principles. The sanitary water is heated linearly from the cool to the hot area of the storage unit and gives rise to maximum temperature layering that is continually renewing. Hot water at any time even the storage unit is only partially charged.



Maximum hygiene

The small capacity relative to the large exchange service is used several times a day. Legionnaire bacteria have no chance of propagating and endangering health. Large heat exchange surfaces require gradual heat transfer (no locally overheated surfaces). Accompanied by other advantages, such as mirror smooth surface, short retention time and turbulence in the fluid, the precipitation and accumulation of lime is substantially minimised.

As the water passes through there is considerable turbulence in the corrugated pipe, which means that the heat transfer (k value) is much better than in conventional heat exchangers.



Drinking water - a precious commodity

The name Forstner is known for the principle of hygienic, continuous heating for 20 years. For one important reason: drinking water is an essential food and should not be stored heated if at all possible.

The FORSTNER HS is a modern heating switchbox! All heat inputs are stored in layers at different temperatures so that they can then be used directly, in parallel or even on a time-delayed basis, according to demand – no matter how the heat is generated or where the heat comes from!



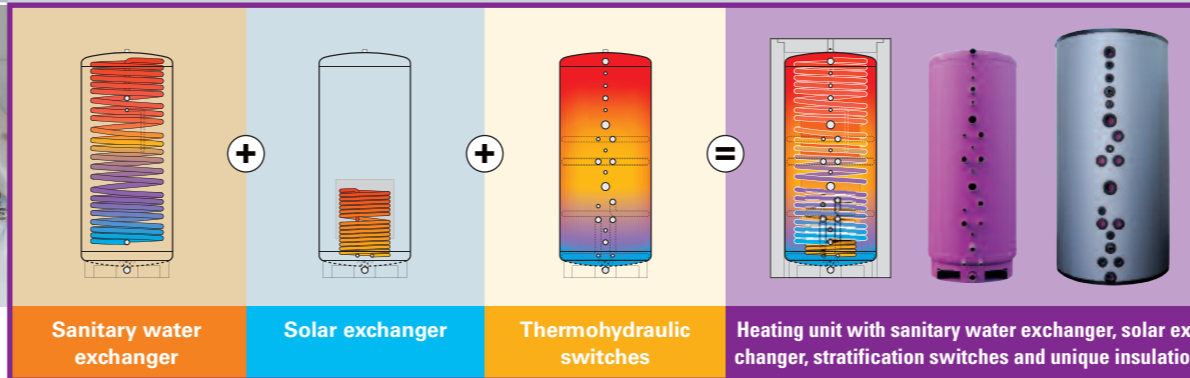
Whether there is a solar system, heat pump, tiled stove, etc. ...



the FORSTNER HS integrates all heating systems perfectly ...



supplying fresh sanitary water at all times.



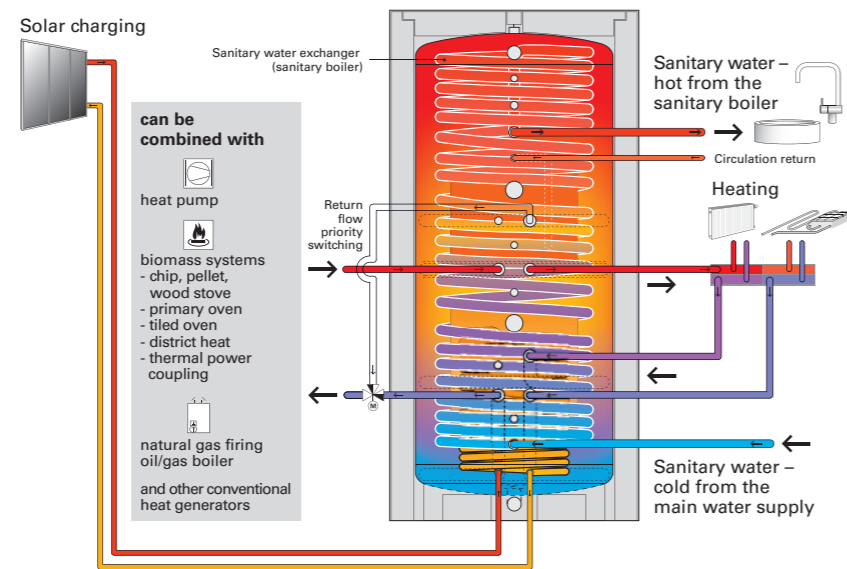
Cross-section of a corrugated pipe of high quality stainless steel



At Forstner Speichertechnik GmbH the office and the manufacturing are supplied only with renewable energies (a solar area of 252 m² supplies between 300 – 400 kWh/day even in winter).

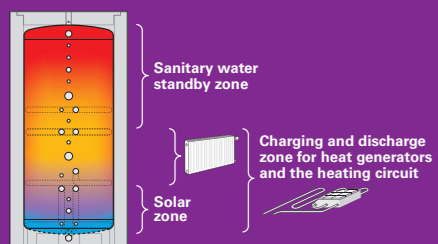
Latest technology for heat Management

In order to guarantee the comfort of hygienic sanitary water heating and temperature-adapted heat transfer to the heating system (low and/or high temperature), an accurate thermal layering is essential. Thus enables heat to be used to maximum efficiency. With the FORSTNER HS physical principles are consistently implemented and used. Special thermohydraulic stratification systems - „switches“ (HYD-SW modules) control centimetre accurate temperature layering during charging and discharge.



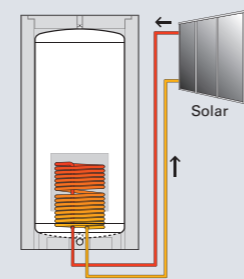
The Forstner hygiene system storage unit (HS) does not generate heat, it stores, layers, regulates, manages and distributes it.

The FORSTNER HS is the ideal heating unit and hygienic sanitary water boiler in one. Solar systems, biomass boilers and all current heat generators can be incorporated in the system with maximum efficiency. **This therefore gives you a huge saving potential.**



Maximum solar yields and efficient auxiliary solar heating

The solar system is integrated by means of a solar exchanger installed in the coolest zone. Because of the unique design, flow turbulence and very thin wall thickness of the corrugated pipe, much better k values are achieved (factor of 1.5) than in conventional exchangers. The system efficiency is therefore decisively improved.



Unique
The plastic plug-in module for the temperature sensor and thermometer is unique. The heat loss is therefore much lower than for conventional connections. Unsafe threaded seals and time-consuming assembly are a thing of the past.



First-class materials

The corrugated pipes for sanitary boilers and solar exchangers are manufactured from high quality stainless steel.

Optimum heat insulation

- best material selection and insulation thicknesses: 110 mm PU hard foam shells with polystyrene outer casing (heat conductivity at 60°C λ=0.024 W/mK)
- perfect fit and sealed jointings
- extremely easy assembly due to permanent magnets
- 100 % CFC-free, made from recyclable materials

Can be extended and modified easily and at low-cost

The demands made on the sanitary system storage unit may also change in the course of time. Solar, biomass energy etc. can be integrated perfectly into the system afterwards if necessary. All the required connections are already existing.

Together let us make Europe free of fossil energy carriers!

80 per cent of energy consumption worldwide derives from fossil sources. The problem with this: oil, natural gas and coal are finite, and their extraction is becoming increasingly expensive. Moreover, carbon dioxide (CO₂), which is considered responsible for global warming, is produced during combustion. You too can convert to renewable energy sources and contribute sustainably to climate protection. There is a considerable potential, unfortunately not yet tapped, in the intelligent management of heat. For the first time the FORSTNER HS enables these modern, life-improving energy sources to be used sustainably and efficiently.

Using heat twice

We are already working on the technology of tomorrow and using heat which was previously irretrievably lost. No matter whether you would like to use waste heat from grey water (runoff from the shower, washing machine, etc.), or from your refrigerator, we can offer you the optimum storage solution. We're therewith opening up to you one of the world's greatest energy potentials. **→ logical – simple – better!**



FORSTNER HS – the right decision

Modern heating is intelligent storage and distribution of thermal energy. The type of heat generation is unimportant and can be changed at any time.



Oil
fossil fuel, relatively simple stocking, space requirement, but only limited raw material, depending on countries of supply and stock exchange speculations, unstable prices, high risk of accident and terrorism
Environmental factor: highly questionable



Gas
fossil fuel, simple transport but with high losses, dependent on gas distribution system, low acquisition costs, dependence on countries of supply and stock exchange speculations, unstable prices, high risk of terrorism
Environmental factor: questionable



Electricity
energy-expensive generation, no stocking required, simple use, low acquisition costs, high risk of accidents and terrorism
Environmental factor: questionable to highly questionable (nuclear energy)



Heat recovery
use of hitherto unused heat!
no stocking, low acquisition costs, sensible use of an energy pool
Environmental factor: very good

Wood chips

renewable fuel, space requirement, time-intensive processing, relatively high acquisition costs, CO₂ neutral, not quoted for the stock exchange, ideal for agricultural and forestry companies
Environmental factor: harmless

Pellets

renewable fuel, space requirement, demanding technology, high acquisition costs, CO₂ neutral, not quoted on the stock exchange
Environmental factor: harmless

Heat pump

Electricity share up to 1/3, no stocking, high acquisition costs, independent on raw material suppliers
Environmental factor: harmless in combination with green energy

Solar

inexhaustible source of energy, no stocking, relatively high acquisition costs, independent on raw material suppliers
Environmental factor: very good

District heat

no stocking, low acquisition costs, sensible use of an energy pool
Environmental factor: harmless



The FORSTNER HS is always the right solution – no matter which heat source you decide on, the patented stratification system makes it the core of your heating system. **You save up to 50% of your heating costs according to the heat supply system used.**

Basic modules

To cover the most frequent requirement profiles, basic models of different sizes are available.

Type HS-BM-10 with solar exchanger (also available without solar exchanger)								
Type	Content l	Ø gross / with insulation mm	Ø with insulation mm	Height gross / with insulation mm	Height with insulation mm	Tilting dimension mm	Hot water output - for living units	Solar area m ²
HS-BM056-10/B/R/T	560	650	890	1850	1980	1940	1 LU	12
HS-BM080-10/B/P/T	820	770	1010	1900	2020	1990	1-3 LU	20
HS-BM098-10/B/L/T	980	790	1030	2190	2310	2260	1-4 LU	25
HS-BM100-10/B/L/T	1000	850	1090	1915	2035	2035	1-4 LU	25
HS-BM136-10/B/L/T	1360	950	1190	2110	2230	2240	1-6 LU	25
HS-BM176-10/A/L/T	1760	1100	1340	2050	2170	2245	1-8 LU	25

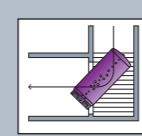
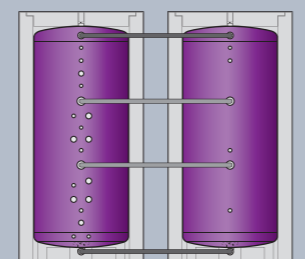
Standard living units (LU), e.g. detached house
up to 2 wet rooms, 1 bath, approx. 150 litres, 1 washbasin, kitchen, heating
Setpoint loading temperature in the upper third of the storage unit (sanitary water standby zone) is 55° C.
The figures indicated are based on empirical values under the conditions described and only allow a rough estimate of the size of the storage units. Exact dimensions must be determined in each specific case.

The choice of correct storage unit size is currently influenced very directly by many general conditions and demands absolute technical competence. Here the type and size of the heat generators to be installed

and the expected specific energy consumption are the most important dimensioning factors, but system hydraulics and regulation must also be included in the deliberations.

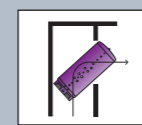
Extension modules

If no storage unit of a suitable size can be installed because of the installation conditions, it is possible to connect the HS-BM-10 in parallel to one or more extension storage units (WS-EM-10), for which the connections are already provided.



Perfect proportions

Because of its proportions the FORSTNER HS can be used wherever there is insufficient space or the door is too narrow for larger storage units, but peak outputs are expected. It is therefore also ideal for renovations of old buildings.



Special solutions

Storage units in other sizes of conventional design and special project-specific variants are designed and produced to the customer's requirements.

Your partner for Forstner storage technology:

The essential advantages at a glance

- ✓ Ultramodern production of the highest quality
- ✓ Extremely economic use of energy - minimises the consumption of all the heat generators
- ✓ Supplies fresh hot sanitary water at all times (stainless steel corrugated pipe continuous flow principle)
- ✓ Separate connection for sanitary water circulation return
- ✓ Solar heat exchanger also manufactured from stainless steel corrugated pipe
- ✓ Unique patented thermohydraulic stratification system
- ✓ Any combination of different heat generators
- ✓ Fewer stops and goes in heating operation extend burner life and permanently reduce pollutant emissions
- ✓ Simplified hydraulics, hence fast, cost-saving assembly
- ✓ Simple operating concept without expensive technology
- ✓ All connections ideally positioned in one axis
- ✓ Optimised heat insulation (best material selection and insulation thicknesses)
- ✓ Small space requirement
- ✓ Extendible – economic – and simple with the FORSTNER extension module
- ✓ Very long life expectancy



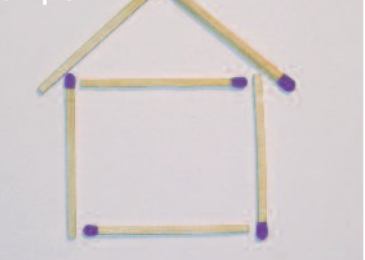
Our thermal storage modules



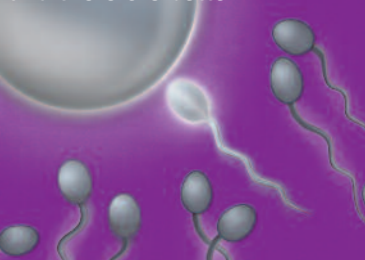
are logical,



simple



and therefore better!



Hygienic Storage System

Minimise the consumption of your heating system and save energy by efficient heat management with the storage unit from Forstner.

SMART UTILIZATION OF HEAT

- Hygienic fresh water heating
- Guaranteed hot water comfort
- Maximised auxiliary solar heating
- Suitable for all heating systems
- Easily understandable, reliable technology
- Sustainable functionality

Now even more VERSATILE!