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Modular storage tank for tight spaces

The thermal storage tank is not fully assembled until it reaches the boiler room

It takes large thermal storage tanks to heat apartment buildings highly efficiently. To install them, they have to fit through standard door openings in existing buildings. The BINE Projektinfo 3/2017 “Large storage tank developed for small spaces” introduces a model that makes this easy. It consists of multiple modules and has lower heat losses than the cascade storage systems previously used.

The individual oval steel modules of the storage tank are mounted close to each other on rails during the installation and are then pushed together. They have a volume of 1350 litres each. The pipe connections between the individual modules are in the vessel. “UniSto”, as the new storage tank is called, offers the same volume but a smaller and fully insulated surface, which reduces heat loss. It is insulated with hard shells of expanded polystyrene. Vacuum insulation panels (VIP) can be fitted in the cavities within the hard shells if required.

The storage tank has already been trialled in several field tests. For example, a Swiss-German energy supply company installed a prototype in a nursing home in Rheinfelden. A heat-led, gas-fired combined heat and power plant and a gas condensing boiler for peak loads meet all heating requirements of the 74 residential units and partially cover the electricity demand. The storage tank is hydraulically integrated in the system so that it stores the waste heat from the combined heat and power system and can make it available both for space heating and heating drinking water.

Research in the “UniSto” project was performed by an industrial consortium involving the Institute for Thermodynamics and Thermal Engineering (University of Stuttgart) and Consolar Solare Energiesysteme GmbH, among others.

The BINE Projektinfo brochure, which can be obtained free of charge from the BINE Information Service at FIZ Karlsruhe, is available online at www.bine.info or by calling +49 (0)228 92379-0. The brochure cover and an additional image can also be downloaded from the press section in this web portal.

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