



WP1.F2 / EXPERIENCES FROM THE INSTALLATION AND THE OPERATION OF THE NEW SYSTEM GENERATION: COMPACT HEATING UNIT FOR SOLAR DOMESTIC HOT WATER (SDHW) PREPARATION

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SUMMARY

One of the promising solar thermal energy system concepts as reported in /Vog06-1/, is the compact heating unit for solar domestic hot water (SDHW) preparation. It was evaluated theoretically, which is reported in: /Vog06-2/, /Ima05/. The system concept was implemented under the designation auroCOMPACT. When the unit is shipped it is completely prefabricated and includes a high efficiency condensing gas boiler, a 150 l hot water store, components for the solar circuit and a system controller for all functions. All these components are integrated in one casing with compact dimensions (60x60x170 cm). It is sold in a package together with two flat plate collectors. The product was successfully introduced into the market during the NEGST project. Even though there was no on-site evaluation carried out on a scientific level, conclusions can be derived from the installation and operation of the large number of systems. The most important findings are related to: the benefits of prefabrication (for easy and safe installation), the unit's compact and aesthetic design (for marketing), the systems innovative and adapted strategy for hot water preparation with the auxiliary heater and the advantages gained for maintenance and problem solving through remote surveillance. The experiences made with these features are described below.

Target market and market success

The auroCOMPACT is very successful on the market. It is designed to supply space heating and hot water for individual apartments, one family houses or two family houses. Thus the compact unit bridges the gap between solar central heating systems and decentralised hot water systems for one household. Solar heat is used for water heating only. Also, in the solar heating domain, the concept bridges the gap between the state-of-the-art solar combi- and hot water systems.

The auroCOMPACT is produced and marketed by the company VAILLANT GmbH and is on sale in virtually all of Europe. Due to its compact dimension, the whole system can be installed everywhere in the house from the cellar to the attic, even in small houses. Thanks to the very high degree of prefabrication and its compact design, installing the auroCOMPACT is any

easy task. Therefore, the auroCOMPACT is well accepted even by installers with little experience in solar thermal energy technology. It is also well accepted by the users because of its compactness, its high performance and its aesthetic design. Since market introduction about 10'000 systems were sold and installed in Europe.

Domestic hot water (DHW) comfort

Among other advantages mentioned above and outlined in more detail in /Ima05/ and /Vog06-2/ the DHW comfort of the system through the combined storage strategy is remarkable. On sunny days the whole storage volume is charged by the solar circuit alone. On cloudy days the integrated shift load system takes over the task of water heating while the solar loop may also supply heat to the store. If the hot water consumption is very high, the system works like an instantaneous water heater. Thanks to this concept, both solar gains and a high degree of hot water comfort can be achieved with the limited (150 l) storage volume which can be placed in the 60x60x170 cm cabinet.

Auto diagnostics, problem correction and system availability

Many customers use the Vaillant VR-dialog system, an auto-diagnostics tool. It detects malfunctions and can notify the installer via internet or phone of any failure detected. Using this feature, the installer is able to solve small problems from a distance via computer, or, if there is a more severe failure, the service technician is aware of the type of problem in advance and can address it in an efficient way, e.g. by preparing the necessary replacement parts.

Currently a redesign project is ongoing which is based on the experiences gained. It aims at improving the auroCOMPACT even further.

References

- /Vog06-1/ Vogelsanger, P., Laipple S. (2006): WP1.D1 / Summary report on today's system technology, (/NEGST/).
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- /Ima06/ Imann, M., H. Drück, E. Streicher (2006): WP1.E4 / Theoretical evaluation of promising system: compact heating unit for solar domestic hot water (SDHW) preparation. (/NEGST/)
- /NEGST/ New generation of solar systems. Project description and public deliverables: <http://www.swt-technologie.de/html/negst.html>

Further information is available on the project website:

<http://www.swt-technologie.de/html/negst.html>

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