



Solar Process Heat Installation

Edmund Merl GmbH & Co. KG, Germany

Summary description

The family owned company Edmund Merl GmbH & Co. KG in Brühl put in operation a 568 m² solar thermal flat collector plant in April 2010. The gained solar heat is buffered into ten heat storages with a total content of 30,000 litres. From the storage the heat is given off to a heat exchanger which in this way 60 °C hot drinking water can be supplied. The hot water is used for washing and cleaning the production and filling plants.

The company Edmund Merl is a producer of gourmet foods, especially salads, dips and desserts pertain to the product range.

Background

Merl rates the use of renewable energies very high. The solar process heat plant helps to make the working processes even more environmentally friendly. A further goal of the company is to reduce energy costs permanently. The production has a daily hot water demand of 32 cubic meters, actually heated up by the energy source natural gas. For Merl it was important to cover a part of its energy demand by the solar process heat installation and reach a partially independency from increasing energy prices.

The funding programme "progres.nrw" in North-Rhine Westphalia supported the realisation of the installation with a 30%-grant on the whole invest of 297,000 EUR. The solar heated water is used among others for the cleaning of the filling plants. Since the solar thermal installation is working, the gas-boiler be turned of during the period of summer.

Technical description

collector type:	flat plate collector
size of collector field:	568 m ²
storage:	10 x 3.000 litres
temperature level:	60 °C
processes:	washing and cleaning of the filling plants
technical feasibility:	the heat storages serve as a thermal buffer, they are not used for the stockage of hot drinking water. If hot water is needed, an independent fresh water station supplies potable water and the heat is supplied by the buffer storage via the heat exchanger. In this way 50-60 °C hot water is available within the heat cycle. As the hot water is not stored, a temperature of supply up to 60 °C is acceptable because typical hygienic problems like legionella do not occur.
investment:	297,000 EUR
financing:	30-%-grant from NRW subsidy programme „progres.nrw“
pay-back period:	9 years expected
economic feasibility:	For the realisation of this solar process heat plant the positive decision on the 30-%-grant was fundamentally decisive.
monitoring:	The temperatures gained at different points within the solar thermal installation are measured and documented.

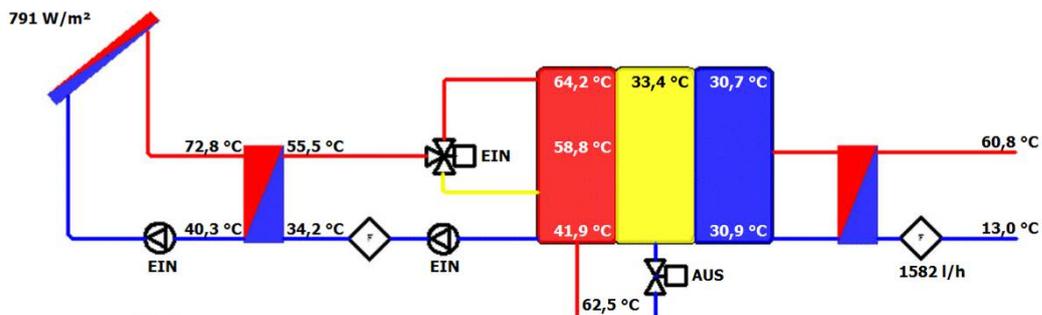
Results & conclusions

The realisation of such a huge solar thermal process heat installation is coupled with considerable assembly efforts which have to be planed very precisely. The site logistic with the production plant in full operation requires sure instinct and a good organisation. The careful analyse of the heat demand and the heat flows within a company took approximately 1 year, after this the planning phase could be completed. The actual installation of the solar thermal plant and its commissioning could be realised in only 4 weeks.

For an optimal and smooth implementation of such an installation within a plant in full operation the encouragement of the client is indispensable, also the close cooperation between the technical management, the planers and the suppliers is particularly important.



Process diagramme



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