



Solar Process Heat Installation

Lackiercenter Schulte, Meppen, Germany

Summary description

In April 2009, the medium-sized company Lackiercenter Schulte in Meppen put in operation a solar process heat installation. The plant is a vacuum tube collector installation with a size of 136 m². Lackiercenter Schulte is a paint shop specialised on restyling of car body parts. The company employs 8 people.

The solar heat gains are stored in two 5.000 litre buffer storages. One of the storages services the heat supply for the painting chamber, which requires a permanent temperature of 23 °C, the other storage services the heat supply for the drying chamber - in this case a constant temperature of 70 °C is required. By means of a water/air-heat exchanger the solar heat is delivered out of the buffer to the cabins supply air.

Background

The reason for the interest in a solar process heat plant and finally for its realisation were the process-related extremely high energy costs. An energy consumption amounted up to more than 30.000 litres fuel oil per year and the desire for more independency from the oil price finally led to the decision to install the solar thermal plant.

An already upcoming refurbishment of a burner and the liquidation of a depreciation reserve obliged the company to take action.

Technical description

collector type:	vacuum tube collector
size of collector field:	136 m ² brutto
storage:	2 x 5.000 litres
circulating heat exchanger:	221 kW (sensitive 171 kW, latent 51 kW)
temperature level:	23°C painting chamber, 70°C drying chamber

technical feasibility:

Processes had to be analysed in detail. The integration of the solar thermal system had to be realised within an overall concept together with a process optimisation – in this case above all by installing a heat recovery.

investment:

116.000 EUR incl. heat recovery

financing:

KfW-funding → 30 % of investment

pay-back period:

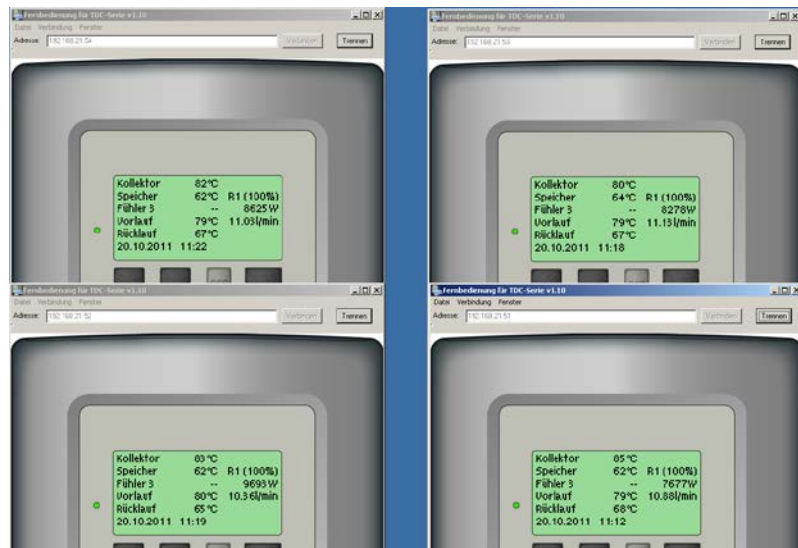
7 to 8 years expected

economic feasibility:

Considering the economic aspects of a solar process heat installation includes the overall optimisation of all heat requiring processes. The doubt “never touch a running system” has to be clarified by a trustfully cooperation of planners, installers and plant operator, along with available investment funds an economic feasibility can be obtained more likely. And if so, the fact that a cost-free supply of heat for many years starts on the day finishing the depreciation obtains even more weight in the over all decision for or against solar thermal.

monitoring:

remote maintenance by internet-capable controller



Results & conclusions

A phase of readjustment and adaptation of originally not known process requirements should be budgeted at the outset.

The 30%-funding by the KfW-Bank is the minimum financial support to enable the investor to compensate the additional costs for the planning of a renewable energy based supply system within the actual market conditions.



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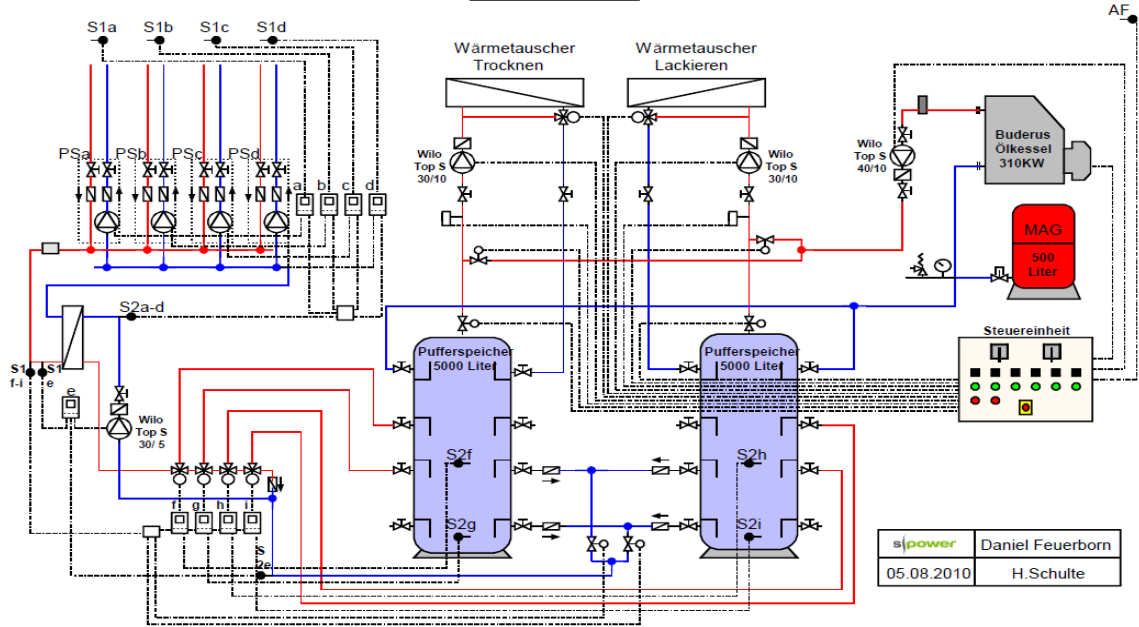


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Anlagenhydraulik



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