

Schwank Case Study:

Superlative utilisation of residual heat: Mercedes-Benz relies on tetraSchwank



„Logistics is a relevant factor in our success. We focus our Supply Chain Management Organisation on growth and gaining higher efficiency and flexibility.“

Markus Schäfer,
Member of the Executive Board
of Mercedes-Benz Cars,
Production and Supply Chain
Management



The Project

Mercedes-Benz built a 90 million euro logistics centre in Speyer, called the Consolidation Centre. It is the largest building complex in Germany. The longest side measures over a kilometre.

Production materials from European suppliers are stored in halls covering 79,000 square metres, before being sent on to Mercedes-Benz production plants worldwide. The site processes hundreds of sea containers weekly, delivering them by rail or barge to the seaports in Antwerp and Bremerhaven and from there on to China, the USA and South Africa.

The 251,000 m² plot contains, in addition to the 79,000 m² space covered by halls, 21,000 m² that were made into a container yard, and administration buildings.

The Issue

The Speyer Consolidation Centre was tailor-made for the specific requirements of Mercedes-Benz Cars and designed to guarantee the efficiency and safety of all operations - for example, separating pedestrian, trucks and container-handling equipment traffic. In the planning stage, the overriding topic was CO₂ reduction. Lighting, energy management and heating were uncompromisingly scrutinised in terms of sustainability and energy efficiency. It was self-evident to those responsible that greater efficiency means lower consumption, thus lower energy costs.

For the heating system, the planners were interested in the most flexible solution with regard to room design and energy efficiency.

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Implementation

Tube heaters quickly convinced the planners of their advantages. Being fixed to the ceiling, they allow the team complete creative freedom in the layout of the racking and picking stations. Schwank's idea was to connect the tube heaters to a heat recovery system that also ensures there is a constant supply of fresh air.

Only 60 radiant tubes of 50kW linked with the condensing technology of tetraSchwank were sufficient for heating the 12 metre high 79.000 m² area.

The performance of the radiant tubes is enhanced by the tetraSchwank heat recovery system that is integrated in the exhaust system. The thermal energy contained in the flue gas is extracted through condensing technology, and fed directly back into the building.

Results

For Mercedes-Benz, the construction of this logistics centre has been clearly coupled with the aim to reduce CO₂ emissions. Previously, the logistics for large foreign plants were exclusively coordinated from Bremen. The Consolidation Centre allows CO₂ emissions reduction of over 25 percent for the transport alone.

The Centre will assure further CO₂ savings due to the sustainable design of the buildings. The use of tetraSchwank increased the systems efficiency by an incredible 110%.

The Heat Recovery System from Schwank saves Mercedes yearly as much energy as 35 family homes would consume in that same period.



Schwank
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