

Schwank Case Study: Distribution Centre – Significant energy savings at great comfort



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Martino Schoenmakers,
Logistics Manager,
Magna Belplas Industries



The Project

Magna Industries is a leading global manufacturer of automotive parts. The Genk, Belgium facility produces bumpers for different car brands. It is common practice for the automotive supply industry to hold certain quantities of finished goods in stock to be able to supply based on Just-in-Time policies. Due to the expansion of the plant in Genk, it was now required to build a new warehouse with a floor area of 6,500 sqm and a height of 12.5 m. The general contractor, Liebaert Staalbouw, was awarded the contract to build the most modern warehouse for Magna.

The company **Liebaert Staalbouw** is one of the largest contractors of industrial buildings in Belgium which has built a number of distribution centres for diverse national and international investors. In the past, the company has shown very little interest in gas infrared heaters. In most cases warm air heaters were installed. Present environmental regulations and building codes require, however, efficient and economical heating systems

The Issue

Liebaert Staalbouw BV drafted a preliminary design with warm air heaters at a capacity of 350 kW. In addition, the installation of ceiling fans was required to evenly distribute the warm air to the ground and to avoid warm air cushions below the roof. Schwank was commissioned to carry out a comparative study of different heating systems in order to determine the most efficient heating system.

The result: Schwank recommended for this specific project gas infrared tube heaters. This recommendation was upheld not only because of the pleasant comfort conditions created, but also in due to the significantly lower energy consumption at a lower investment cost.

Basis of the interpretation was an ambient temperature of +15°C with a minimum outside temperature of -10°C, a temperature tolerance of +/- 2K over the entire floor area must not be exceeded. The building also has good insulation values [the average U-value is less than 0.4 W/m² K].



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The Implementation

Liebaert decided in favour of the presented concept with insulated high efficiency tube heaters [calorSchwank]. Due to the very high radiation efficiency of this type of product energy consumption is reduced and the carbon footprint is significantly lower than conventional warm air systems. With only 245 kW installed this modern system saves more than 35% in energy costs over the initially planned warm air system. The units are installed above each loading bay door since the largest part of the heat losses take place here. In order to prove the homogeneous distribution of heat within the building several temperature sensors were installed at the far end of the building. A BMS [Building Management System] controls the system in two independent heating zones.

The Results

The entire staff appreciates not only the comfortable heat, but also the virtually noise-free operation. Likewise, wind drafts are completely eliminated due to the lack of inefficient destratification fans. Even during the first cold winter when the outside temperatures were drastically below average, the indoor temperature was very pleasant. Permanent temperature measurements showed that even on the coldest days a tolerance of +/- 2K was never exceeded.

Mr. Martino Schoenmakers reconfirms: "The heating system transmits a pleasant heat, without any noise or drafts. The energy consumption of the new building is 35% below that of comparable buildings. For upcoming buildings, we will certainly choose Schwank infrared technology again".

In the past 5 years Schwank has heated more than 12 million square meters of distribution centres and warehouse space. This experience in high quality and efficient heat is well appreciated by customers such as DHL, TNT, FEDEX, Nippon Cargo, UPS, Amazon and many others.



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