

Perfect freshness for fruit and vegetables



Line of Business:	Industrial Refrigeration
Application:	Fruit and Vegetable Cooling
Country / City:	Germany / Kehl
Fluid:	NH ₃ , Glycol
Product:	Wall/ceiling air cooler GGHF, Wall/ceiling air cooler GGN

Transportation and logistics for fresh fruit and vegetables make considerable demands of storage and cooling systems: The precious products must be cooled and stored at the optimum temperature and humidity in order to retain their freshness, tasty appearance and also their specific aroma. Internationally successful logistics company Gartner KG, whose head office is in Lambach, Austria, has met this challenge head on. Gartner equipped its branch in Kehl in southern Germany, where its comprehensive range of fruit and vegetables that have been imported from France and Spain are stored, with Güntner air coolers: A hall containing five cooling boxes and a large-scale area storage facility were planned by engineering office KWN Engineering GmbH and implemented by Schulz Kälte- und Klimatechnik GmbH from Heddeshheim.

Efficient coolant system

KWN Engineering GmbH planned a coolant system with NH₃ liquid chillers with flooded operation and evaporative condensers for the cooling rooms with a total of five individual cooling boxes and for the area storage facility for storing all incoming goods. Since NH₃ is a natural, energy-efficient refrigerant, this did not just make a contribution to protecting the environment but also led to a reduction in operating costs. Due to suitable subdivision into different cooling units, Gartner KG can reduce costs even further by means of partial load operation.

Economical cooling with the GGHF

The equipment in the cooling rooms was calculated for storing sensitive products such as asparagus and strawberries, and for room temperatures of between -0.5 and +2 °C in cooling boxes 1 and 2 and for room temperature of +2 to +4 °C in cooling boxes 3 to 5. Each individual cooling room was equipped with special versions of the Güntner GGHF wall/ceiling air cooler, the design of which is oriented to the specific room and storage requirements.



Provision of the Güntner air cooler for installation

A total of 20 S-GGHF units are used over a total area of 2531.5 m². The powerful wall/ceiling air coolers are outstanding because of their high heat absorption over a small heat exchanger surface, and provide economical room cooling. The output can also be increased by approximately 10 % using the speed-controlled air coolers with the system operating at full load and at the maximum outside temperature.

Quality assurance and hygiene

Depending on the room size, which ranges from 274 m² in cooling box 1 to 941 m² in cooling box 3, two, four or six S-GGHF units with different sized cooling boxes and six, eight or ten optional axial fans were installed in the cooling boxes. The axial fans provide large quantities of air and excellent efficiency for even air distribution in the entire cooling area. Moisture accumulation that would affect quality does not occur in spite of the high humidity. Thermal short-circuits and heat accumulation are also effectively prevented. The throw distance of the fans can also be increased and the air volume flow meaningfully directed by installing the Güntner Streamer. The special drip tray design with sloping drain prevents condensation from forming or dirty water from gathering in the corners of the tray: This provides extremely good hygiene, and keeps the cost of cleaning and maintenance down.



Speed-controlled air cooler in area storage facility

An essential requirement was therefore met, since air coolers in fruit and vegetable distribution storage facilities usually have to comply with considerable demands. The service-friendliness of the arrangement is also extremely important, since the air coolers may need cleaning at frequent intervals because of frequently-occurring soiling caused by cardboard packaging or soil. All S-GGHF are impinged with propylene glycol refrigerant 38 % (inlet -8 °C, outlet -4 °C). In order to provide optimum adaptation to the cooled products, each unit has two speeds. Defrosting takes place in cooling boxes 3 to 5 via the refrigerant or by means of ambient air defrosting, and using electric heating elements in cooling boxes

1 and 2 if required. Outside the cooling boxes, 15 highly-efficient Güntner S-GGHF wall/ceiling air coolers ensure that the entire hall is uniformly cooled.



Service-friendly arrangement of the air coolers in the area storage facility

Large-area cooling with the GGN

The area storage facility at Gartner AG at the Kehl site is in a separate hall and has an area of 4,121 m². The large area is used to cool the supplied goods, which are brought in at approximately +10 °C and cooled to +2/+4 °C over 16 hours. The area storage facility is designed for the storage of 720,000 kg of both asparagus and strawberries. Twelve Güntner S-GGN wall/ceiling coolers are used to cool the precious products. The GGN model series was specially developed for deep freeze rooms and large cooling rooms, and therefore has a horizontal air intake. Propylene glycol 38 % is also used as the refrigerant in this case.



View of service and maintenance corridor in area storage facility.

Gartner has a total cooling area of 6,652.5 m² at the Kehl site, where stable room temperatures and therefore optimum fruit and vegetable quality are provided with some 872 kW of cooling power.



High bay store cooling box 1 with Streamers

Gartner KG: "The World of Transport"

The company uses a modern fleet of trucks with low-emission transporters, which do not exceed an average vehicle age of two years. The company's range of services includes refrigerated and tarpaulin-covered shipments, vehicle shipments, chemical shipments, warehouse logistics and sales. The branch in Kehl, southern Germany, has special equipment for storing and distributing fruit and vegetable shipments from France and Spain.