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## Natural refrigerants for slaughterhouse in Brazil

Using natural refrigerants in the food industry has been a topic of interest for a while. Especially when it comes to the field of meat production, ammonia refrigerating installations have been in use already for decades.

The same applies for the Brazil-based company Alibem Comercial de Alimentos Ltda. Alibem, known on an international level for their great meat quality, offer a wide range of products. In 2004, the company began to slaughter 1,000 pigs per day; the production has since more than tripled. The production takes place at two sites in the Rio Grande do Sul region; 2,300 pigs are slaughtered in Santo Ângelo and 3,000 in Santa Rosa per day.

This capacity increase was necessary as the company has entered new markets like Singapore and South Africa and recently signed an export agreement with China. In addition to this, there have been the needs of the local market in which Alibem wanted to serve niches like the demand for new meat cuts and smaller cuts of pork meat.

It was all about finding the best technical solution possible to cater for minimum weight loss of the meat cuts during the production and to keep the plant's energy consumption as low as possible. Unique for this project: For the first time, Güntner Brazil were not only the component supplier, but also collaborated with the customer's engineers in charge on the technical plant design and were responsible for the electric and mechanic installation of the entire plant.

### Overview

Line of Business:	Industrial Refrigeration
Application:	Meat cooling
Country/City:	Brazil/Santo Ângelo
Fluid:	Ammonia
Product:	Air coolers S-MAN, S-AGHN



▲ Alibem sites;  
Santo Ângelo in red

A part of this responsibility was to change existing concepts rooted in the market: So, not only the capacity of the evaporators was in focus – in this case, it was the size of the heat exchanger surface that was decisive for the model selection. A sufficient surface with the possibility of raising the evaporating temperature, thus reducing the driving temperature difference, allows for reaching the required room temperature also at low fan speeds. At low speeds, the rate of air circulation stays at a level preventing excessive desiccation of the meat. Furthermore, current consumption is accordingly low especially at low speeds so that energy consumption could also be reduced.

**The following Güntner evaporators were chosen for the ammonia plant with pump circulation with a total cooling capacity of 11,395 kW:**

Unit type	No.	Kind of room?	Güntner solution/Why?	Accessories + Options
S-MAN 065*	6	Freezing tunnel	Because in this case we use the fan for 250 Pa total pressure drop.	Water defrost, Hot gas defrost on coil and tray and Double insulated tray
S-AGHN 050	6	Processing room	Small industrial evaporator with re-heat coil (dehumidifier) and low noise level	Re-heat coil (dehumidifier)
S-AGHN 050	5	Storage room – frozen products	Industrial evaporator – standard to low temperature.	Water defrost, hot gas defrost on coil and tray and double insulated tray
S-AGHN 050	2	Storage room - polyvalent (-10 °C or -35 °C)	Industrial evaporator – standard to low and medium temperature (reversible process)	Water defrost, hot gas defrost on coil and tray and double insulated tray
S-AGHN 071	10	Expedition and palletization	Industrial evaporator with re-heat coil (dehumidifier)	Re-heat coil (dehumidifier)
S-MAN 065*	6	Carcass chilling room	Because in this case we use the fan for external pressure drop and high volume air flow.	Double insulated tray

\* Series from Sales region NLA