

HÙNG VƯƠNG



Precise cooling: Fish production in Vietnam

The new fish factory of Hung Vuong Ben Tre produces frozen food in line with HACCP directives for the European and Russian market every day. About 1,500 employees process approx. 250 tonnes of seafood per day on a total area of 30,000 m². Güntner evaporators, air coolers and coils reliably provide normal-temperature and low-temperature storage rooms and freezers with cold. A thermowave plate heat exchanger is used here to connect the primary with the secondary circuit.

The Vietnamese fish producer Hung Vuong Ben Tre – a global player in the fish industry – expanded its fish product range by seafood and therefore created new production capacities. The new fish factory located in the Vietnamese province of Ben Tre covers an area of 30,000 m² in total: About 12,500 m² thereof are available for production purposes and the other 17,500 m² are used for logistics and storage. It is here where freshwater fish are shock-frozen, portioned, packaged, stored and subsequently picked for overseas shipment.



▲ Vietnam

Overview

Business line:	Industrial
Application:	Fish product cooling
Country/Region:	Vietnam/Hung Vuong Ben Tre
Fluid:	Ammonia/water
Product:	Güntner CUBIC Vario AGHN evaporators and air coolers Güntner CUBIC Vario GGHF air coolers Güntner GCO coils thermowave thermolineVario

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▲ Guntner CUBIC Vario GGHF air coolers ensure a room temperature of 15 °C in the production rooms. As the corrosion potential is very high due to the salt aerosols in the production rooms, Guntner CUBIC Vario GGHF made of stainless steel with AlMg₃ resin-coated fins are used.



▲ A thermowave plate heat exchanger transfers cold from the central ammonia refrigeration cycle to the water circuit which, in turn, cools the production rooms to an average temperature of 15 °C.



▲ The fish filets have to be individually quick frozen to ensure freshness and highest quality of the finished goods. Guntner's stainless steel GCO heat exchanger coils enable this high tech process.

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About 1,500 employees of Hung Vuong produce seafood in IQF (individually quick frozen) quality. The fish are slaughtered, filleted and afterwards graded according to shape, colour and size. The further production process covers the stages of shaping and freezing. The complete portioning process is done by hand.

The refrigeration equipment of the plant has to withstand extreme conditions: It has to ensure hygienic manufacturing and storage conditions despite tropical climate and the high corrosion potential prevailing particularly in the production rooms. The entire refrigerating installation was also optimised for efficient energy input and is controlled with pinpoint accuracy. The installation is characterised by a robust and reliable technology.

Production in line with HACCP directives

As the frozen goods are intended for the Western and Eastern European market and Russia, the technology has to meet the requirements of the quality and hygiene directives of these target markets. This is why the new seafood production was certified according to HACCP directives. Guntner supports Hung Vuong with air coolers that are HACCP-ready-certified by TÜV Süd.

Further certificates of the plant's quality standard are: GLOBAL GAP, BRC, IFS, GMP, ISO 9001:2008, ISO22000:2005, HALAL, ISO/IEC17025:2005, ASC, BAP and VietGAP. Maintenance and service intervals are contractually settled according to the requirements of this quality assurance and quality management.

The cold produced by NH₃ technology in the machine room is conveyed via a secondary cold water circuit into the multifunctional processing areas. A thermowave thermolineVario TLO250 plate heat exchanger with a capacity of 750 kW serves as dense interface between the primary and secondary refrigeration cycle.

Deep freezing with high-capacity Guntner coils

The fish filets have to be frozen in an extremely short time to ensure freshness and highest quality of the finished goods. Guntner's stainless steel GCO heat exchanger coils provide smooth operation in the diverse blast freezers systems of the plant.

The extreme NH₃ cold is used during the production processes for six IQF freezers (Individually Quick Frozen), adding together to an amount of 340 kW), eight hardening tunnels with a total of 300 kW and for four Air Blast Freezers (ABF) totalizing 400 kW. Regarding all of these freezers, Guntner has delivered a total of 24 high-capacity and robust GCO coils. The maximum overall freezer capacity is 1,040 kW.

The freezers are provided with NH₃ cold in pump operation via the primary refrigeration cycle. The room temperature for the IQF and hardening tunnels adds up to -40 °C ($T_e = -45$ °C), whereas the ABF freezers operate at a temperature of -35 °C ($T_e = -40$ °C).

Hung Vuong Corporation

Hung Vuong is the biggest processor and exporter of pangasius in Vietnam. At present, the company's products are available in 60 countries in the world. Hung Vuong Corporation runs a closed system, from breeding, engaging in aquaculture and processing to cold-storing and exporting. The company owns a modern cold storage with a capacity of 42,000 tons for its own use and also for renting service. All plants have strictly applied the HACCP standard as well as Global GAP, BRC, IFS, GMP, ISO 9001:2008, ISO 22000:2015, HALAL, ISO/IEC 17025:2005, ASC, BAP and VietGAP.



▲ Güntner supports Hung Vuong with CUBIC Vario GGHF air coolers, HACCP-ready-certified by Tüv Süd, in implementing the HACCP concept.



▲ Eight Güntner CUBIC Vario AGHN air coolers and DX evaporators of different sizes evenly distribute cold in the storage rooms.

Following the freezing process, the packaged goods are temporarily stored in the temperature-controlled warehouse. The cold storage provides space for 2,000 pallets and ensures maintaining highest food quality while waiting for transportation. The entire refrigerating load of the cold storage rooms (-22 °C) and the normal-temperature storage rooms (5 °C) is 185 kW. The freezing room is provided with cold in the primary refrigeration cycle by evaporators in pump operation with a pump rate of 4:1. Eight Güntner CUBIC Vario AGHN air coolers and DX evaporators of different sizes evenly distribute cold in the storage rooms. Hot gas is used for defrosting the air coolers and direct expansion evaporators.

Air conditioning via cold water

Ammonia is not put to use in the production rooms; the whole air conditioning capacity of 700 kW is conveyed to the terminal equipment via cold water instead. The refrigerating capacity of the thermowave thermoline TLO250 TCGL is 750 kW. Güntner CUBIC Vario GGHF air coolers ensure a production room temperature of 15 °C and 22 °C respectively according to the required room functions.

In the production facility for fresh-water fish, 25 Güntner CUBIC Vario S-GGHF units operate, and the same amount of these units – differently outfitted though – is installed in the hall where the processing of the Pangasius catfish occurs.

Because of the corrosive atmosphere in the production rooms, the complete casing and fan guards of the units installed in these rooms are made of stainless steel. The fins are AlMg₃ to prevent corrosion. According to the hygiene HACCP requirements, they are also equipped with hinged trays with drain slope to prevent the formation of condensation water. The Güntner Streamer ensures great air throws with directed air volume flow and makes for a uniform and effective air distribution in the production halls.

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