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HACCP-certified air coolers for the food and beverages industry

Those who think of machines for food treatment when speaking of HACCP are not wrong. However, the principles of the „Hazard Analysis of Critical Control Points“ in industrial food treatment cover a significantly wider range. The entire process is subject to stringent hygiene directives, which translates into the fact that all components that are part of production are in focus, from the ground floor to the hall ceiling.

For the production process itself, air coolers are a secondary component. Their design should be hygiene-compliant though, so that a classification as „particularly critical point“ is avoided right from the beginning.

Air coolers are to discharge a sufficient volume of cold air towards sensitive products such as fish or meat. But thinking of air that is, at the same time, germ-contaminated by dirt traps would certainly give a plant manager sleepless nights. This is because the economic consequences that arise from contaminated food that could therefore also be injurious to health are serious, owing to the industrial production scale.

Diseases that can be traced back to the consumption of specific food usually cause – while receiving huge public interest – product recalls and the closing down of production lines or of the entire plant respectively for cleaning and disinfection works. In addition to personal injury on the final customer side and to the serious economic damage resulting from the returned goods to be disposed of, there are additional production losses as well as reputational damage on the trading partner side and/or in final consumers' minds.

A producer of foodstuffs can insure himself against operational interruptions but not against the long-term reputational damage and the loss of customers and markets this would create. In the worst case, the food producer suffering damage faces insolvency.

Cooling of foodstuffs

In order to prevent such damages, the infrastructure and the equipment used in food-producing companies therefore must meet very stringent hygienic standards as a matter of precaution, independent of the requirements of the HACCP concept. Companies are not only obliged to sufficiently clean and disinfect their production equipment – they also must ensure that the water quality and the staff hygiene are accurate and, of course, that the cold chain works consistently.

This is because the spoiling process of uncooled foods sets in immediately via the metabolism of the foodstuff itself and/or via its microbial flora on the surface. Every 1

hour during which cooling does not take place or is insufficient, this irreversible effect doubles. So one hour of interruption of the cold chain can result in the shelf-life being reduced by one day.

HACCP concept for hygiene management system

The HACCP concept, prescribed in Article 5 of Regulation (EC) No 853/2004 of the European Parliament and the Council on the hygiene of foodstuffs, has the general objective to control hazards related to foodstuffs. The system relies on prevention and not on the control of final products.

The scope of the regulation is not restricted to EU territory. As foodstuffs imported into the Community have to meet at least the same or equivalent hygiene standards as food produced in the Community, HACCP is also mandatory for third countries in case they want to import products into the EU.

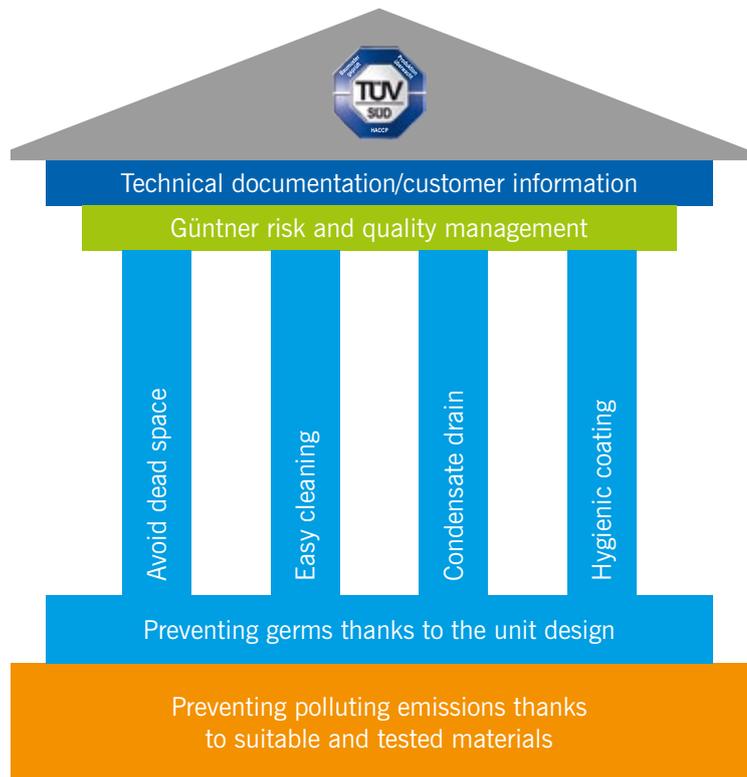
The concept works across companies and comprises the entire production chain from production, processing and logistics to retail (general principles – see text box); it comprises also the supply industry. In this context, cooling of foodstuffs plays a major role – this implies that suppliers and component suppliers of refrigeration engineering worldwide are required to take action.

HACCP certification of air coolers

Every year, the German standards authority TÜV Süd tests the manufacturing process of the air coolers manufactured by producers certified in accordance with the HACCP directives and ensures this way that the unit properties stated by the producer are achieved in the individual manufacturing facilities.

This annual auditing and certification gives the final customer the certainty that the choice of material, the merchandise management system and the quality management are each standardised for the entire air cooler production chain and that every unit that is delivered has the same technical and hygienic characteristics.

In business practice, it should go without saying that the heat exchangers in the cooling units and cold rooms are cleaned and disinfected at regular intervals, so as to prevent microbial contamination. This requires that the materials of the heat exchangers are designed in such a way that they easily withstand aggressive detergents used for cleaning and disinfection. However, the requirements placed on air coolers operated under HACCP conditions go beyond the characteristics of the materials and also concern the unit design.



Picture 1:
Güntner HACCP Certification

Güntner air coolers are HACCP-tested

The Güntner air coolers of the SLIM, DUAL and CUBIC families are HACCP-certified by TÜV Süd and are thus perfectly suited for use in areas with stringent hygiene requirements. The inner as well as the outer drip tray can be hinged for inspection and cleaning. Edges at an angle of 45° provide best cleanability and ensure that dirt traps cannot form. In addition, the outer tray is thermally decoupled to prevent the formation of condensation water at the outside of the unit right from the start. The condensation water drains via a large opening.



All the unit materials are checked for suitability in the food sector by accredited laboratories and institutes. This ensures that they do not discharge any volatile matter into the environment via the air during operation, hence retaining the quality of the foodstuffs.

Güntner is the only manufacturer worldwide who has offered air coolers for the food and beverages industry certified according to the HACCP directives for more than ten years. These air coolers are re-certified annually following a comprehensive design and production test by TÜV Süd.

Picture 2:
HACCP certified Güntner aircooler SLIM Compact

The seven principles of the HACCP concept:

HACCP comprises seven principles that serve to continuously identify and control significant risks in a food-processing company:

1. Identifying any hazards that must be prevented, eliminated or reduced to acceptable levels
2. Identifying the critical control points at the step or steps at which control is essential to prevent or eliminate a hazard or to reduce it to acceptable levels
3. Establishing critical limits at critical control points which separate acceptability from unacceptability for the prevention, elimination or reduction of identified hazards
4. Establishing and implementing effective monitoring procedures at critical control points
5. Establishing corrective actions when monitoring indicates that a critical control point is not under control
6. Establishing procedures, which shall be carried out regularly, to verify that the measures outlined in the subparagraphs 1 to 5 are working effectively
7. Establishing documents and records commensurate with the nature and size of the food business to demonstrate the effective application of the measures outlined in the subparagraphs 1 to 6.

