



VERPACKUNGS RUNDSCHAU

**PRODUCTS, TECHNOLOGY,
TRENDS FOR DECISION MAKERS**



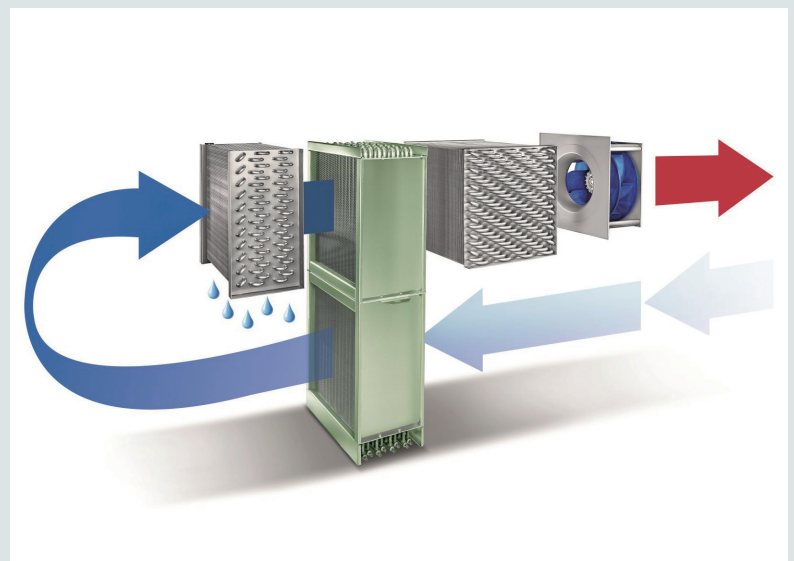
Source: Harter

Sausage packs in lattice boxes ready for drying

Cult Snack

Innovative Drying Solution for Packaged Mini Salami

Drying is a critical stage in many a production process. Ineffective or poor drying may impair and disturb the whole process. So it pays to have a look at an alternative method to resolve drying challenges and to optimise processes. As in the case of BiFi.



Airgenex process schematic, one module has a rating of 9.5 kW - measured dehumidification rate is 33 l/h.

■ LSI-Germany GmbH of Ansbach produce all snacks under the BiFi and Peperami brands which enjoy cult status as leading products in their market segment. BiFi is sold throughout continental Europe while Peperami is exclusively distributed in the UK and Ireland where cooked sausage is preferred.

This is why Peperami is pasteurised and must then be dried in the package. And this is how it was done - Sausage snack laden baskets on pallets are placed in the autoclave. LSI (workforce of 450, owned by Jack Link's since 2014) were no longer satisfied with the quality of their existing drying / blowing station. The salami packs were conveyed by a chain into a tunnel to blow off adherent water. Inside the tunnel, however, both ventilation and process air conditioning were inadequate so that the packages were left incompletely dry. The process also required much manpower, was a source of high noise pollution, involved high energy cost and raised the necessity for large storage areas for air drying. For all these reasons, the operator was looking for alternative drying solutions. Through online search, they came across Harter GmbH of Stiefenhofen/Allgaeu. Harter has been developing, producing and distributing energy-saving drying systems for more than 25 years. More than 1,000 of their systems have been in use in various industrial applications. In co-operation with the innovative drying system supplier, a drying solution was worked out for fast, effective and reliable drying of sausage snacks after autoclaving. All customer requirements and desires were met.

BiFi's in Batch Operation

After an initial visit to LSI Harter found themselves confronted with the following situation. LSI use various sizes of lattice boxes for snacks of different sizes. Mini salami sausages were produced and placed in boxes at hourly intervals. The lattice boxes were manually conveyed into the tunnel. The boxes were tilted to drain water before blowing off.

The first solution considered was a continuous dryer with in-built chain conveyor of the same size as the existing blowing station. The lattice boxes would have been tilted inside the dryer. Certainly, the use of



the Harter Airgenex drying technology would have dried the products, reduced the noise pollution to a fraction of its previous level, and relieved the need for large storage areas. However, the manpower for applying and removing the covers would have remained the same.

„The innovative approach was to dry the whole pallet with all its boxes after autoclaving rather than the individual boxes“, says Jochen Schumacher of Harter Technical Sales. This would change the manual process to a batch process.

Initial scepticism by LSI was dispelled by trial tests conducted at the Harter premises. Harter have an in-house pilot plant station to test the drying response of products. These tests are used to determine the relevant drying parameters such as time, temperature, humidity, air speed and air flow. The parameters determined are then reflected in the design of the drying system. The batch concept was finally realised. Today, mini salami snacks in boxes on a pallet are dried at a temperature of 50 °C and subsequently cooled to 38 °C. „Although the combined drying and cooling modified the process, the existing qualification with regard to the product temperature was retained“, explains Andreas Schloetterer, LSI's responsible project engineer. Following pasteurisation, battery-powered trucks transport pallets in drying chambers. The chamber doors close automatically. The drying / cooling process is fully automated. Schloetterer: „We specified a residual humidity of about 0.015 g per pack which is achieved in the process.“

The whole process is visualised on a touch screen integrated in the drying system

control panel. The drying system has an in-built Airgenex dehumidification module. It controls the climatic conditions inside the drying chambers. There is a special main recirculation fan in each drying chamber to create the high air flow required. This recirculation air flow is routed through the boxes / packages in a defined way.

The Harter purpose designed Airgenex drying technology is capable of drying packaged or unpackaged products at temperatures of 20 °C to 90 °C, as required for the individual application. This is done by passing extremely dry and, thus, unsaturated air over the items to be dried to absorb any humidity. In a downstream dehumidification module, the air is stripped of the humidity it carries. The humidity is condensed and the condensate drained off. Subsequently, the cooled air is reheated and recirculated to the drying chamber. The drying loop is closed. This makes the drying cycle almost emission free. The Airgenex module, which is responsible for stripping humidity from the air, is either integrated in the drying station or attached to it, as space permits. The drying chamber has a customised air recirculation system installed to ensure adequate air routing for the specific application. ■