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packaging journal

Efficient Drying Systems for the Packaging Process

Fast and Reliable Drying of Packagings

Good drying is an essential part of a quality production process. If drying fails or is insufficient the whole process is jammed, much less may the throughput be raised. The German drying system manufacturer Harter is committed to prevent such problems.

When investing in facilities operators often take trouble-free drying for granted. Realising the importance of the drying process, and setting out to improve it with a view to better quality and economy – this is what drove company founder Harter 25 years ago. Today, Harter is a medium-sized company which has long since acquired a leading role in various markets when it comes to drying. The German drying system manufacturer has also gained a foothold in the packaging field with an alternative drying technology, the purpose devised "heat pump based condensation drying".

Dry Air in the Right Place

"Heat pump based condensation drying" is the solution to many a drying challenge. It combines seemingly conflicting features such as low temperatures and short drying times. Harter's purpose devised Airgenex® condensation drying systems and its variants AIRGENEX®med and AIRGENEX®food are capable of drying, in a gentle and stress-free manner, products made from metal, glass or plastic, as well as organic products such as food at temperatures between 20 °C and 90 °C.

The technology may thus be employed to dry any primary or secondary packa-

ging following cleaning, pasteurising or sterilising. The use of extremely dry air combined with customised air routing enable very short drying times and excellent drying results to be achieved. The integrated heat pump technology provides for highest efficiency of the process. Drying is always accomplished in a closed system and is, thus, fully independent of the climate. Clean air environments are not affected. This ensures best quality and highest process reliability.

Airgenex® condensation drying is a flexible system which may be integrated in any process. Air dehumidification using a heat pump is suitable for both batch and continuous operations. AIRGENEX® drying systems meet GMP and GAMP requirements. With minor modification, this condensation drying system may also be used for cooling if desired or required by the specific process.

Pilot Plant Station for Specific Test Set-ups

Harter's philosophy is to offer comprehensive service packages including consultancy, R&D, engineering and design, all provided by various departments under their roof. The five manufacturing departments for refrigeration system

Belt-type batch dryers for the pharmaceutical industry (here for infusion bottles) can dry and also cool all kinds of products.





This classic batch dryer may also be used for pharmaceutical products.

construction, plastic system construction, metal processing, control engineering and air-conditioning provide high in-house production depth. Qualification and validation are also included in the services offered. An after-sales service perfectly complements the business portfolio. An in-house pilot plant station is used to test customer products for response to drying, a service Harter has always offered. The results of these tests are used to develop an appropriate system layout. The innovative drying system manufacturer also draws on solutions found in hundreds of projects.

Jochen Schumacher of Harter Oberflächen- und Umwelttechnik GmbH, Stiefenhofen, Germany, Technical Sales provides information about the

application potential and the benefits of their drying systems:

Mr. Schumacher, which products in the packaging field may be dried using the Harter developed technology?

Jochen Schumacher: In the pharmaceutical and medical field, mainly primary packaging products and secondary packages after the sterilising process. These may be plastic bags, bottles or syringes as well as glass vials. Cooling is also an issue which has also become more and more important.

Are there any other packaging related applications, for example in the production process of packaging materials?

Jochen Schumacher: Yes, drying is also required in the course of plastic foil

production - it should be as fast and efficient as possible. We can foresee quite a few applications in this field.


Why are drying tests so important?

Jochen Schumacher: Each customer has a different product with specific properties. Drying tests are a reasonable approach to determine the parameters relevant for successful drying, such as temperature, time, humidity, airflow rate and air speed. The test results, the customer's know-how and our expertise form the basis for further system layout and design.

What makes your so-called condensation drying so efficient?

Jochen Schumacher: The use of our special heat pump technology, in the first place. It relieves the need for ambient air intake or discharge and ensures maximum heat recuperation. Selected fans for targeted air routing are also large contributors to the high efficiency achieved.

What are the benefits for the user?

Jochen Schumacher: The drying process is reliable and safe. It can be validated and is reproducible. The user becomes independent from environmental conditions while, at the same time, saving energy. Noise emission is minimised because our dehumidification modules act like silencers. And this (laughing) is an "all-inclusive" package, in other words the customer gets everything from a single source from initial consultancy, through commissioning to maintenance. 



Fully automatic belt dryers (here with stand-up pouch) dry and cool separated products using targeted air routing.