

# Precise dosing delivers the perfect mix every time!

## INNOVATIVE CONTAINER HANDLING SYSTEM FROM DAXNER GUARANTEES OPTIMAL QUALITY AT HÜGLI

**What is the return on investment? This question marks the beginning of every entrepreneurial idea. Which performance does a new facility achieve, at what cost and which additional benefits does it yield? This is the starting point for the company Daxner; to develop innovative solutions for the food industry; which are perfectly tailored to meet our customers' requirements.**



Fully automated collection system with Daxner Container Systems DCS in connection with the Automated Guided Vehicle system AGV  
Container series DCHD in hygienic design, volume capacity 1,200 ltr, CIP compatible

PRESS RELEASE | PROJEKT HÜGLI

A well-renowned food producer invested more than 30 Million in the new production facility in southern Germany where all kinds of dry mixed products like soups, sauces, bouillon, seasonings, desserts and instant meals are produced. A flexible, automated mixing and dosing plant serves the production of high-quality mixing recipes. The annual capacity reaches 40,000 tons and it delivers 12 batches of ready-mix with 2,000 ltr each per hour.

Given the large number of orders with a small batch size and a large number of components, this represents an outstanding achievement. In addition, the plant encompasses a new contamination-free

changeover for the production of a variety of recipes. This performance is achieved with the automated handling of various raw materials with the Daxner Container Handling System DCS combined with an Automated Guided Vehicle system (AGV).

**Innovative process technology**

The system design ranges over 3 levels and covers the whole production process on an area of 4,000m<sup>2</sup>: from the storage of raw materials in outdoor silos, the transport to the day silos, their filling, dosing, weighing and the mixing process with 6 separate blending lines through to the discharge in IBCs (Intermediate Bulk Containers).

Daxner developed an innovative system with integrated easy clean equipment design, dust-free powder handling and prevention of cross contaminations, in order to maintain product integrity. The facility with its state-of-the-art quality and hygiene concept was put into operation in 2017 in accordance with the international food standards (IFS) and guarantees utmost process safety.



The main components are stored in outdoor silos and are conveyed pneumatically to the mixing lines.

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After collecting the automatically dosed components, the container is positioned under the manual loading station. This is where all small components get loaded in complete bags and/or as a subset from the automated storage and retrieval system.

### Efficient raw material handling

All ingredients are divided in large, medium and small components. Large components are stored in 10 outdoor silos and are pneumatically conveyed to the 4 mixing lines. Medium components are stored in 30 day silos which are fed by bag intake stations and Big bag discharge systems. 40 weighing stations, which are assigned to the day silos according to the product properties, are installed below the stainless steel day bins. The dosing and weighing of all middle components into the assigned container scales is fully automated and ensures an accuracy of  $\pm 50$  grams.

More than 1,000 small components (e. g. spices) are stored in an automated storage and retrieval system in approximately 9,000 crates. Here, all recipes with less than 1 kg are managed and dosed manually. The components are delivered automatically from the storage by the order management system and transported to the 4 manual dosing stations. The individual components are

weighed into a transport unit (trough with barcode identification). Afterwards, the order-specific troughs return to the automated storage and retrieval system for interim storage.

### Maximum flexibility and cleanliness with container transport system DCS

A total of 50 IBCs are used with a volume of 1,200 ltr each. The Automated Guided Vehicle system (AGV) consisting of 4 vehicles in the product discharge area, they are transporting the containers throughout the whole plant and delivering at the desired discharge station. The FTF takes the empty containers out of the conveying system and position them automatically below the correct scale. The laser-controlled IBCs move to the discharge station, whose location they can pinpoint precisely. Subsequently, they are lifted up before being docked and filled by the Daxner Container Docking Station DCDS.

Due to the pre-weighing of the components at the weighing stations, the

IBC's can be filled at a high rate of up to 12 containers/h. After collecting the automatically dosed components, the IBCs are positioned below One of Four manual dosing stations. Here all small components are dumped as complete bags and/or as a part /subset from the automated storage and retrieval system. After adding the manual components, the IBCs are picked up by the AGV system and then conveyed to the level above the mixing line with a lifting device. Subsequently, they are positioned at the Daxner container discharge station with an electric forklift. The discharge station is equipped with a self-centering frame and a connection socket. A discharge aid with a dockable vibrating motor enables the container to be residue-free after discharging.

Four powerful ploughshare blenders provide a thorough and fast mixing of the components with high mixing accuracy. The finished blends are filled in Big bags and transported to the packing station.

### Detailed technical solutions

Jede Anlage von Daxner ist individuell auf die Anforderungen des Kunden abgestimmt. Eine besondere Stärke des Engineerings, kombiniert mit der eigenen Fertigung bei Daxner stellen technische Detaillösungen dar, die im Zuge der Konzeption eines Anlagendesigns entwickelt werden können.

**- Container discharge system:** An automated device for opening and closing the container valve is built onto the container discharge system. The container is emptied using a manual valve with a hand operated lever which has been automated and opens and closes fully automatically with two pneumatic cylinders. In emergency situations and for cleaning purposes the container can also be closed manually with the hand lever.

**- Mobile Big bag discharge station:** The day bins are filled by a state-of-the-art,

mobile Big bag discharge station. The loading platform is located one level above the installed day bins and is connected to them with an embedded filling nozzle. The mobile Big bag discharge stations are placed above the filling nozzle and connected with a lever mechanism, creating a closed off and dust-free system.

**- Docking system for various Big bag sizes:** When the mixing process is completed, the components are fed into Big bags. Industry standard docking systems usually fit or are suited to one particular Big bag size. To adapt it to different sizes then requires a further level of manual intervention. Daxner developed a mechanism which enables the system operator to adjust the docking station to various Big bag sizes with minimal effort. To keep the Big bag handling as simple as possible, a new suspension for a continuous adjustment of the bag size was implemented.

### Plant control system

The plant control system provides an optimal interaction between process and controls engineering. ESAweight is connected to the overriding ERP system and controls, monitors and documents all production processes. It coordinates the container transport and guarantees the smooth operation of the automatically dosed components. The main advantages of this system lie in the comfortable operation, as well as the complete traceability and parallel order processing.

“You accompany a project from the first ideas to the final commissioning. In the end you are fascinated by how perfect the different facilities and components operate together”, concludes Hartwig Scheidlberger, head of sales at Daxner, about the successful megaproject.



Container discharge with automated flap opener; mobile bag intake station



The middle components are stored in day bins and are loaded via a mobile Big bag discharge station.

## OUR KNOW HOW. YOUR STEP AHEAD

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