

# Tiny amounts, big results:

## DAXNER DOSING AND WEIGHING SYSTEM FOR SMALL COMPONENTS GETS THE MEASUREMENTS RIGHT AT SCHAUMANN

H. Wilhelm Schaumann GmbH is one of the most important European manufacturers of mineral and pharmaceutical mixtures for nearly all types of animals. A multitude of different small components give rise to special, highly effective feeds. This requires absolute precision in their dosing and weighing, because even the smallest deviation can significantly affect their quality. It's a challenge that the Austrian company Daxner successfully tackled at the Schaumann Taufkirchen facility: A sophisticated system solution ensures high productivity and absolute precision. It is a trailblazer for small component handling in other industries as well.



**Batch component dosing facility**  
System for 2 x 8 components  
Product infeed into standardized containers;  
Buffer bins with rotary bin dischargers;  
Dosing screw conveyors with flow stop discharge valve.

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The precision of the automatic dosing and weighing system developed by Daxner is 10 grams per component. That is an impressive figure, but for the Schumann company it is the be all and end all. "Even the smallest deviations in dosing and weighing the vitamins and trace elements needed for the mineral mixtures will lead to undesirable results. We can therefore tolerate no imprecision in our production, because for us, quality is the top priority," is the way Stefan List, long-time manager of the Taufkirchen plant, explains the

stringent requirements.

### **No conflict between precision and productivity**

The system that Daxner developed for Schumann succeeds in balancing precision and productivity. They got the dosing and weighing not only precise, but efficient. Thanks to innovative Daxner bulk solids technology, now up to 12 batches an hour can be processed. That is a significant increase.

### **Optimizing production**

The Taufkirchen feed works is one of the most modern, efficient production facilities in the industry. "We see future-oriented technology as a significant competitive advantage that we consistently invest in," the manager explains.

The advantages are obvious: In this case, technology not only brings higher efficiency and precision, but also optimization of the whole production area. "We could finally eliminate spatial constraints. Because dosing was put on the ground floor, and weighing in the basement, long-needed additional space was obtained for the mixing area.

### **Residue-free handling of difficult materials**

What had previously seemed impossible has now succeeded through intelligent resolution of technical details. Despite the individual production steps being set up on different levels, the production process works completely trouble-free: A pneumatic dense phase conveyor sends the dosed and weighed components from the basement to the mixing process on the fourth floor.



Container dosing facility for small components.

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Defying the laws of gravity, they arrive completely free of residue and contamination, and meet the strict hygiene requirements 100 percent.

### The solution is in the details

Above all, it is the many technical details that add up to this system's uniqueness and efficiency. Company head Johann Daxner observes: "The solution is in the details. It is also our strength — our expertise. So on the one hand we've got excellent technology, and on the other hand we know how to use it for the specific customer and specific task. The total result depends on every little detail." This philosophy is reflected in the system solution developed for Schaumann, and in its technical execution.



**Rotary bin dischargers RA**

Dosing screw conveyors with flow stop end cap for precise dosing.

### Combined dosing stations

Schaumann stores the small components necessary for the mineral mixtures — trace elements and vitamins — in the Taufkirchen feed works' ground floor. To take them from big-bags or sacks, and fill containers with them, two combined dosing stations are available. These are equipped with control sieve machines. An inflatable hose docking system and a powerful aspiration system with a radial fan and jet filter make the filling dust-free.

### Container dosing system

The containers themselves are a central element in small component handling. They are designed as a stable steel frame with flexible, clamped containers with a filling lid and discharge flap. After they are filled, they are guided to the dispensing system, which consists of two dosing stations, each with eight container locations. Forklifts use docking collars to set the containers onto vibrating frames. The vibration ensures residue-free emptying into interim containers. Agitating dischargers uniformly feed the dosing screws. Exact production, speed control and the flow-stop end cap ensure precise dosing.



**Combined feeding stations for bags and big bags**

Control screen KS700

Aspiration system with radial fan and jet filter

### Flexible scale

Then weighing takes place in a flexible scale. It is designed as a container scale with flexible rubber liners. Together with pneumatically activated squeezing elements, they guarantee residue-free emptying even with powders that do not flow easily. To ensure strict hygiene requirements, it can be moved out on tracks for easy cleaning. Another plus: High weighing accuracy of 10 grams (weighing range up to 50 kg), allowing

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individual components of 1 kg to be weighed to 1% precision.

**Pneumatic dense phase conveyor**

After that, the flexible scale empties the weighed components into the pneumatic dense phase conveyor directly below. This moves the bulk material from the cellar to the receiving container on the fourth floor. Despite the long, complex routes, even sticky or heavy-flowing products can be gently transported with absolutely no residue. The conveyor pipe extends over a 30 m horizontal and 30 m vertical distance, in which a total of six 90-degree pipe bends are built. These are designed as flexible hose elbows for highly adhesive products. The receiving container upstream from the mixing process is designed as a scale that uses gravimetric controls to ensure 100 percent residue-free conveying and emptying processes. Delivery of the content to the mixer completes the batch cycle. Twelve batch cycles can be performed per hour.

**Testing and fine-tuning**

Besides being planned and designed to the smallest detail, the system underwent fine-tuning on site before being installed and integrated into the production process. The Daxner specialists designed and ran tests in the plant to achieve

the right dosing precision under realistic conditions.

**Proven in operation**

In the Taufkirchen feed works, the Daxner dosing and weighing system has been

running for six months to the customer's complete satisfaction. "We set a very high bar that the Daxner company completely cleared with a system solution thought through to the smallest technological detail. We are connected through a very long partnership that has



**Flexi-Scale and pneumatic dense phase conveyor**

Weighing bin 300 l - used as Flexi-Scale with flexible rubber in-liners with massagers, The implementation of rubber in-liners allows the discharge of materials with poor flow characteristics and prevents caking. Massagers provide a reliable material discharge. The pneumatic dense phase conveyor ensures a gentle transport of the product to the feeding device.

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been completely confirmed again by this project,” says Stefan List.

### **A promising solution for other industries, too**

This version of the automated dosing and weighing system is not revoluti-

onary just for the animal feed industry, but also for many others that use small components with diverse characteristics. Johann Daxner sums up the strengths of this technically demanding system in this way: “Above all, our solution has potential for any company that has to dose and weigh raw materials

with the utmost precision, and where hygiene demands require that all contamination be prevented.”