

EFFICIENT AND SUSTAINABLE THROUGH EXPERIENCE

# PRODUCING PET FOOD RELIABLY



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**ZEPPELIN**<sup>®</sup>  
WE CREATE SOLUTIONS

# ZEPPELIN SYSTEMS – YOUR STRONG PARTNER IN PET FOOD PRODUCTION.

In Germany alone, almost 50% of households have a pet. The share of animal lovers is also increasing worldwide, and with it the demand for high-quality pet food. Tap into this trend – Zeppelin Systems specializes in the construction of plants for the handling of high-quality bulk materials. We have over 70 years of experience and extensive know-how in handling a wide range of raw materials – from raw material intake, storage and discharge, conveying, processing and dosing, to mixing and control. More than 1,600 employees, most of whom are highly qualified process technicians and engineers, work to ensure your success.

## **ACTIVE WORLDWIDE**

We support you from customized system planning to implementation and provide all services from a single source. With innovative process concepts, smart automation solutions and comprehensive service throughout a system's entire life cycle. Our 22 sites worldwide ensure short distances and fast, flexible and extremely customer-oriented service around the clock. In our Association of Technical Centers for Bulk Materials, we also enable you to carry out tests on an industrial scale to check and optimize the system design.

## **OPTIMUM RAW MATERIAL HANDLING**

Efficient production lines with high availability and reproducible quality are a prerequisite for pet food production. Zeppelin Systems provides the optimum system technology for this and has developed processes that are designed to meet the specific requirements of the respective product. They ensure that cross-contamination is virtually eliminated and clean production that meets hygienic standards is ensured. Extremely accurate measurement technology ensures precise ingredient dosing.

## **HIGH SYSTEM FLEXIBILITY**

Changing raw materials are common in animal feed production. Zeppelin Systems plants are also set up for this. In this way, they can be quickly adapted to different aggregate states, e.g. powder instead of granulate, or also regionally varying raw materials with different bulk densities.

### **YOUR ADVANTAGES AT A GLANCE**

- No cross-contamination
- Hygienic production
- Precise measurement technology
- Easy to clean
- Reliable traceability
- Quick adaptation to changing raw materials
- Low maintenance systems







## SUSTAINABLE PRODUCTION THANKS TO LIQUID REWORK.

The enormous variety of products in the animal food sector requires frequent batch changes and a high level of cleaning effort during production. This results in large quantities of production waste, which needs to be disposed of with great effort. This not only drives up costs, it is also not sustainable. The experts at Zeppelin Systems have therefore developed the "Liquid Rework" procedure to reprocess discarded material, return it to the production process, and thus save resources. The waste produced during frequent batch and

product changes first moves into a separate container with an agitator, where an aqueous solution is generated. When the suspension has reached the appropriate viscosity and correct temperature, this mixture can be returned to the actual process. This saves you costs for disposal and transport, you use less raw materials and also improve your CO<sub>2</sub> balance sheet. A good example of a functioning circular economy in pet food production.





# COMPREHENSIVE EXPERTISE FOR OPTIMUM PROCESSES.

Leading companies worldwide rely on the expertise of Zeppelin Systems for pet food production. The plants are involved in almost every stage of processing, from raw material intake, precise dosing to product-friendly conveying – and they are used for all types of animal food, both for extruded and baked dry food and for wet food.

## ***RAW MATERIAL INTAKE***

Zeppelin Systems plants are specially designed to meet the needs of the pet food industry. As early as during raw material intake, you lay the foundations for successful system operation. We analyze the spatial and structural conditions in advance in order to be able to optimally plan the dimensions of the system. In doing so, we take into account hygiene aspects, environmental requirements and occupational health and safety regulations. You can decide where and how the intake takes place: Whether outdoors or in the building, stationary or mobile, manual or fully automatic, sorted over several stations or collected via an intake point. For example, the entire range of pneumatic conveying processes, big bag and bag emptying stations is available to you in the area of raw material intake. Of course, all processes can also be combined.

## ***STORAGE***

For the first-class quality of your end products, the storage of raw materials in a product-appropriate manner is the main prerequisite. That's why we rely on the hygienic design of all components. In addition, our silos and containers are designed according to the proven "first in, first out" principle, with which your raw materials are treated particularly gently. We develop customized storage solutions with insulation, supply of dehumidified air and discharge devices to prevent clumping up to the level of explosion protection. Our silos and storage tanks offer optimal cleaning options, oxidation-free storage and maximum storage times.

## ***PNEUMATIC CONVEYANCE***

Product-specific conveyance is crucial for an optimal end result. We have various pneumatic conveying methods that can be used depending on product characteristics. Air conveyance (LeanTec) is used to transport insensitive bulk materials, in which the raw materials are conveyed in overpressure or vacuum operation. Fragile bulk materials are transported with the gentle dense flow conveying system (DenseTec). The AQU air volume control system from Zeppelin Systems controls the volume of conveyed air so that the conveying speed is extremely reduced. This allows slow and gentle plug transport to prevent the kibbles from breaking.



## ***WEIGHING AND DOSING***

Zeppelin Systems supplies everything from a single source for efficient weighing and dosing of free-flowing and slow-flowing substances – from components for batch weighing to differential dosing scales including control. As allergies are also becoming more common in pets, cross-contamination of raw materials needs to be avoided as far as possible. This is ensured by various systems, which are used depending on the component size: the manual, semi-automatic and fully automatic MicDos small component system, MinDos middle component system and MacDos fully automatic high-performance system. KOKEISL mechanical discharge and dosing module can also be used to fill bulk material in any quantity into other containers with an extremely high throughput accuracy from silos and tanks.

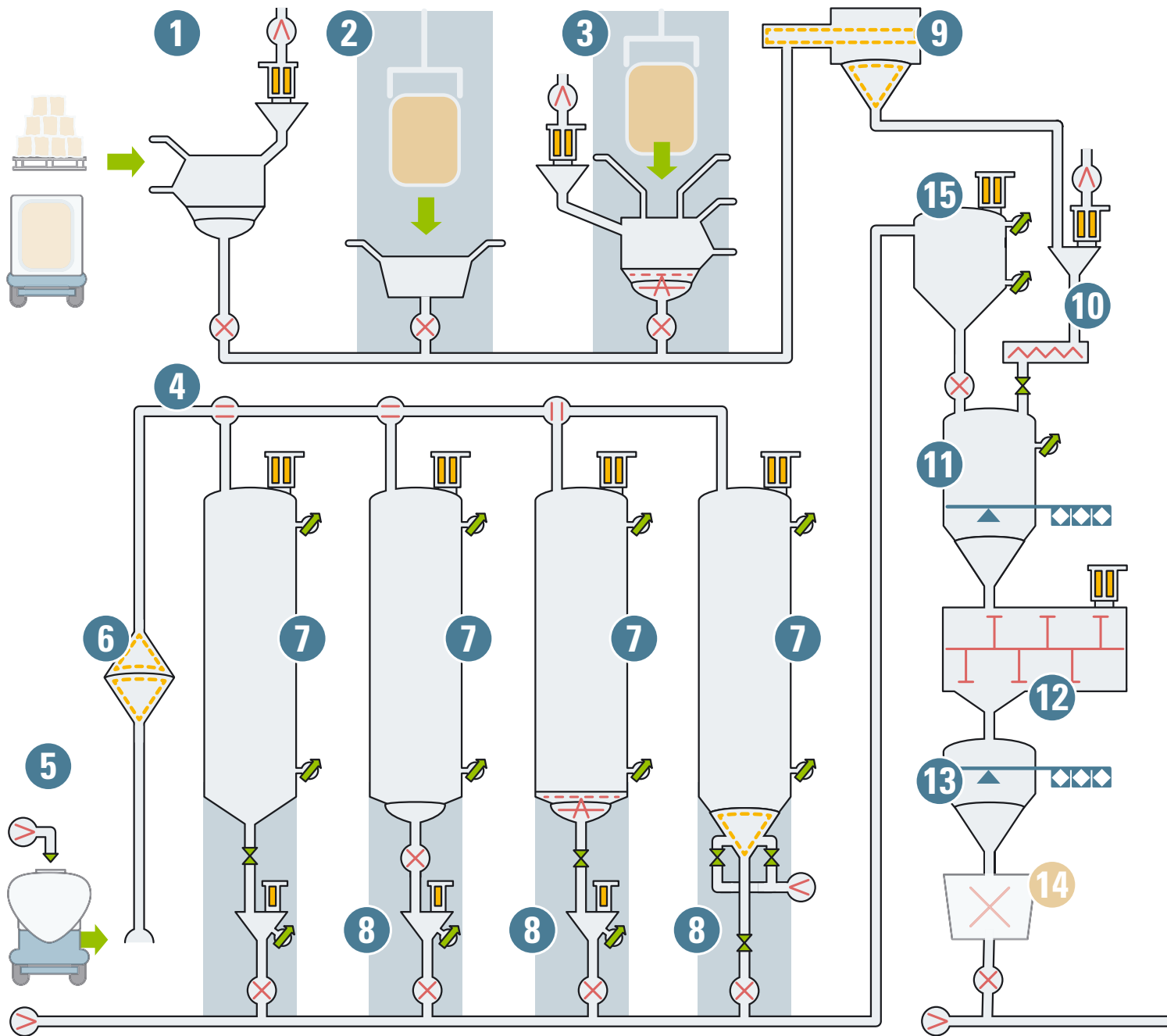
## ***EXTRUDING AND MOLDING***

The extrusion technologies used in the food and pet food industry are continuous processes. The continuous extrusion finally gives the kibbles the characteristic shape that is created by the cutting tool behind the extruder nozzle. Once the kibbles have been cut, they are gently conveyed by a special vacuum conveying system with a high volume of air. It is important to keep the amount of abrasion to a minimum.

## ***DRYING, COATING, COOLING AND PACKAGING***

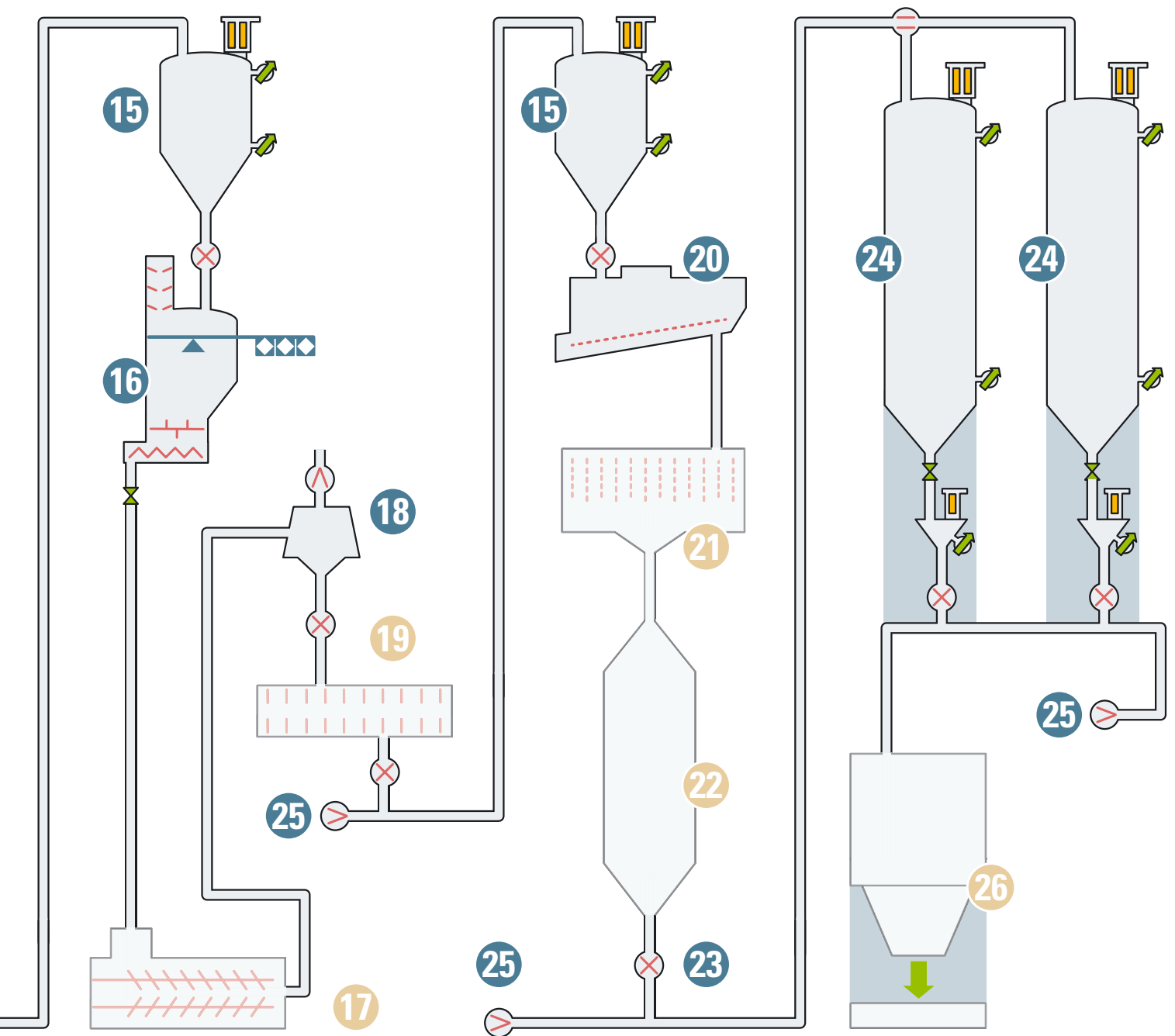
Zeppelin Systems is very familiar with the drying, coating, cooling, and packaging process steps as well as the respective interfaces. With our innovative transport systems, we can combine the individual process steps with each other – e.g. with the DenseTec dense flow conveying system, which ensures extremely gentle conveying during transport to the chiller and packaging plant. And our silo technology ensures intelligent solutions for the respective end product – economically and individually customized to the product characteristics and your framework conditions.

# PROCESSING RAW MATERIALS SAFELY.



- 1** Bag emptying station
- 2** Big Bag emptying
- 3** Bag/Big Bag combination system
- 4** Diverter valve
- 5** Delivery of bulk materials and transfer to storage silos with pressure conveying system
- 6** Truck screening system

- 7** Storage silos with top filter
- 8** Silo discharge systems
- 9** Rotation sifter
- 10** MinDos and MicDos dosing system
- 11** Weighing hopper
- 12** Mixer
- 13** Secondary hopper
- 14** Hammer mill



**15** Filter receiver **16** Loss in weight feeder  
**17** Extruder **18** Cyclone with fan  
**19** Dryer **20** Screening unit

**21** Coater **22** Cooling system **23** Rotary valve  
**24** Storage silos **25** Dense phase conveying  
 for fragile bulk materials **26** Packaging system

● Process step - Zeppelin Systems  
 ● Process step - external





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