Lofty energy balance

Air is a crucial factor for drying performance and energy needs: the warmer and drier the air, the more moisture it can absorb. This in turn means that the retention time for dry material can vary strongly depending on the temperature and humidity.

Due to the highly efficient airflow, the Farmer Automatic Drying System always achieves maximum drying performance with minimum energy consumption.

Efficient drying

The innovation of the biomass dryer is its perforated steel plates. The hot-dip galvanized, powder-coated steel plates are sturdier and can carry more substrate. This greater weight-bearing capacity makes it possible to increase the number and size of the perforation holes. As a result, optimum water vaporization per kilogram of substrate or air saturation per cubic meter of air is achieved. This leads to greater dryer performance per square meter of drying surface.

Optimum air permeability

The perforation holes with a diameter of 0.3 cm in the 30-cm-long and 200-cm-wide steel plates make for optimum air permeability – even if they are loaded with layers of substrate that are up to 15–20 cm thick.

Furthermore, less air pressure needs to be built in order to "push" the drying air through the holes and the substrate. The dryer works with an air pressure of as little as 50–100 Pa, while comparable systems require at least 200 Pa.

Scope of delivery

In the shipment of the Farmer Automatic Drying Systems, all components for loading, removal, ventilation, all accessories (for assembly), drive control, as well as frequency control for air pressure and supply are included. Also included are a front piece with all drives (1.5 m), the center piece with the required number of individual segments (3 m each), an adapter if required (1.5 m), and an end piece, where the plates are re-shifted and the chain conveyor tension is generated (1.5 m). We deliver and assemble the complete dryer turnkey-ready! OPTION: The belt dryer can be equipped with a biological or chemical exhaust-air washer or with a combination of both.

For a poultry house with 80,000 birds we recommend the belt dryer type BTD 24 (Dimensions: 27,150 mm long - 2,560 mm wide - 3,300 mm high). The size of our drying systems is generally adjusted to the individual sizes of the houses and quantity and type of the wet organic biomass.

German-made success

Farmer Automatic offers innovative products for ultramodern poultry farming. With more than 45 years of experience in the market worldwide, we produce and sell complete solutions for a single source with a range of products designed to be always flexible and adapt to poultry farmers’ individual requirements.

As a personally managed family company we work as partners to our customers, always on hand to provide effective support for their long-term success. Together we work towards real growth so that we are always one step ahead of the demands of the market.
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Biomass processing – the technology of the future

One of the biggest challenges for energy and ecology policies in the 21st century is the processing of biogenous waste material of all kinds, in a way that is profitable and preserves resources and the environment.

The Farmer Automatic Drying System is a flexible, economical drying belt, which was specifically developed for the sludge drying of liquid manure, fermentation residues from biogas systems, and additional regenerative energy carriers. This makes it possible to process biomass for further energy use, and to easily store, transport, as well as use it as a natural fertilizer suitable for export.

Flexible solution

The system solution for biomass drying masters the challenges of the modern energy industry and of agriculture. With the Farmer Automatic Drying System, the output per square meter of drying surface and cubic meter of air is significantly increased. Due to the optimal use of warm air from the stable or the biogas system, the amount of energy and time required for all kinds of regenerative biomass to achieve a dry matter ratio of over 80% is considerably reduced.

Economical performance

In addition to the improved performance of the dryer, the construction of the modular system is also more compact. In the horizontal belt dryer, a belt made of two layers of perforated plate belts that are positioned on top of each other.

Need-based loading

Depending on the type and properties of the original material to be dried, different versions of the Farmer Automatic Drying System are available:

- Generally speaking, the belt dryer is available in a simple or in a double version. The material to be dried passes either two or four decks of perforated plate belts that are positioned on top of each other.

Solid material drying

Here a swiveling conveyor belt ensures that the substrate is distributed evenly on the dryer plates. As it is put gently only the drying belt, the structure is not damaged. The speed of the conveyor belt determines the thickness of the substrate on top of each other, and the substrate is poured loosely onto the deck below.

Solid material drying

The optimum air flow ensures the best possible dryer performance on evenly loaded dryer plates. The substrate is distributed evenly over the plates drying belt by the conveyor belt.

Advantages at a glance

- Modular system: segments of 3 m plus head and end piece of 1.5 m each, two or four decks, depending on the user’s individual need of loading with animals and the size of the farm
- Low wear and low maintenance: high-tech coated steel plates, solid construction of all parts; Conveyor construction: little room required and reduced assembly time-related costs
- Improved capacity – width: 25 cm x 200 cm per plate; loading height: 15–20 cm
- Supreme energy efficiency: maximum air saturation with minimum energy requirements
- Problems of disposal resolved: biogenous residues simply processed for profitable further processing
- Improved air saturation and dryer performance per square meter of drying surface, cubic meter of air volume, and kilogram of substrate

Achieve more with individual solutions

Comparison of the systems

The technology involved in sludge drying is not exactly near to poultry farming. What’s so innovative about the Farmer Automatic Drying System is the efficiency and flexibility both in daily operations and assembly as well as the required space.

A comparison of the system shows:

<table>
<thead>
<tr>
<th>Tunnel dryer</th>
<th>Belt dryer</th>
<th>Comparison</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>80 m total</td>
<td>27 m segments + 2 x 1.5 m (front and end piece)</td>
</tr>
<tr>
<td>Width</td>
<td>160 cm</td>
<td>250 cm</td>
</tr>
<tr>
<td>Height</td>
<td>300 cm (10 decks) + 150 cm (airflow)</td>
<td>350 cm (4 decks) + 40 cm (airflow)</td>
</tr>
<tr>
<td>Assembly time</td>
<td>100 %</td>
<td>50 %</td>
</tr>
<tr>
<td>Retention time</td>
<td>Approx. 4–5 days</td>
<td>2–2.5 days</td>
</tr>
</tbody>
</table>

Pelletizer

Pellet production - For livestock farming or subsequent burning, the dried material can be pelletized immediately.
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