



# Big Dutchman®



## OptiSec

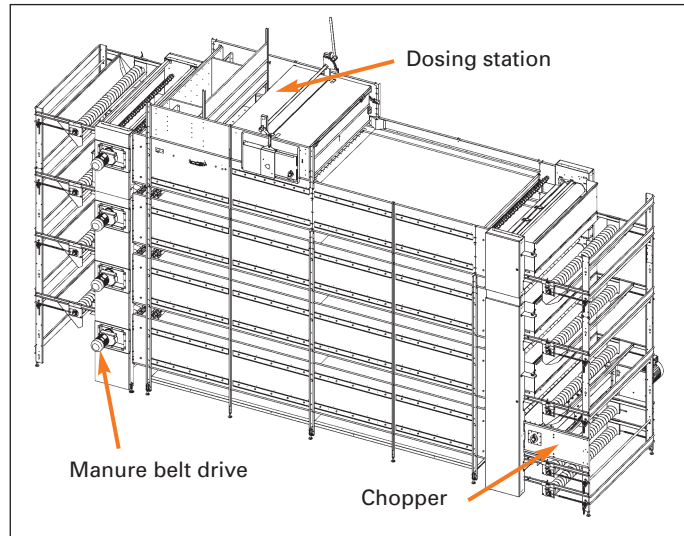
High-capacity manure drying tunnel  
for a maximum dry-matter content

# OptiSec – dries fresh manure from layer houses and fermentation substrates from biogas plants

**OptiSec** is a new manure belt-drying tunnel developed by Big Dutchman. OptiSec provides optimum drying of fresh or pre-dried manure from cage and aviary laying systems. With the help of this system, it is possible to achieve dry matter contents of up to 90 %; thus creating ideal conditions for safe storage or further marketing of the manure. OptiSec is available with 4 to 14 tiers and is characterized by its large capacity, which is achieved thanks to its

large width of 1.75 m. Depending on your individual requirements, every manure belt-drying tunnel is designed appropriate to the number of hens and hence the amount of accumulated manure. One belt-drying tunnel can handle up to 200,000 birds. Let our experts advise you!

Utilising OptiSec for drying fermentation substrates from biogas plants is another important application possibility.



OptiSec with 8 tiers

## How it works

When the manure removal process is started, the fresh manure is transported from the barn to the belt-drying tunnel by means of conveyor belts. Once it reaches the belt-drying tunnel, the manure is transported directly into the dosing station. The quantity of manure put through the belt-drying tunnel is determined by weight via electronic load cells. These coordinate the speeds of both the manure belts inside the barn and the drying belts. A uniform layer of manure is then spread onto the topmost drying belt by means of two counter-rotating worms. When the manure reaches the end of the topmost belt it automatically drops down onto the next conveyor belt and the transport continues until the filling is finished. An emergency stop on every tier ensures that no major damage occurs in case of malfunctioning.

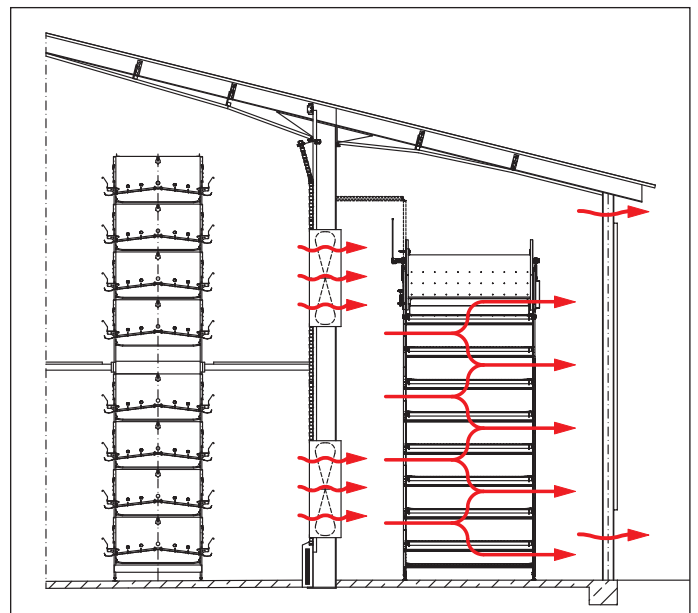
## Ventilation concept of the tunnel

For the drying process, warm exhaust air is pushed into the pressure corridor at four cubic meters per hour and bird. The air passes through all tiers of the drying tunnel from one side to the other along its entire length.

The perforated manure drying-belts ensure that the warm air passes not just over the manure but directly through it, therefore achieving dry matter contents of 80 to 90 %!



Pressure corridor with an overpressure of approx. 25 Pa





## Loading the tunnel with fresh manure over the dosing station



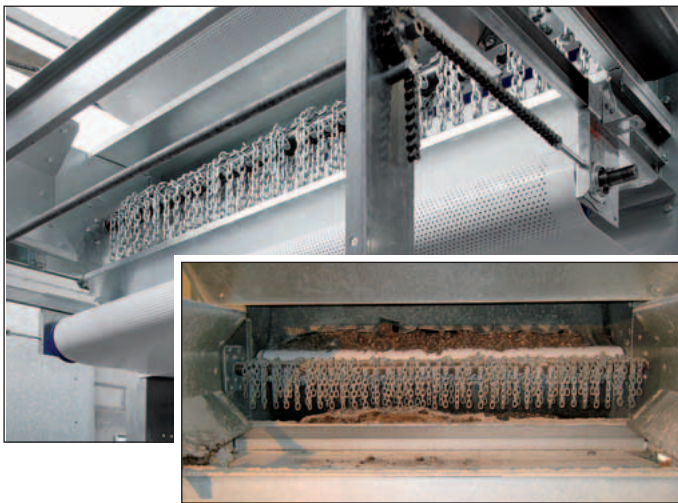
The dosing station is installed in the topmost tier of the drying tunnel. This innovative and economic solution has the following advantages:

- no additional tier is required, which means that the tunnel size can be reduced by one tier-size;
- no additional belt drive is required.

The quantity of manure, the speed of the belts and the two distributing spirals are well coordinated ensuring a very even distribution of manure on the drying belts. This is of course a very important condition to ensure that the manure dries evenly.



## Technical details



### Chopper

The chopper consists of a rotating shaft, which is equipped with chain links of approximately 20 cm length. The chain links chop up the manure chunks before they are fully dried therefore ensuring significantly more even manure drying. The chopper should be installed in a place where the manure has already reached a good degree of drying. The well thought-out construction has the following advantages:

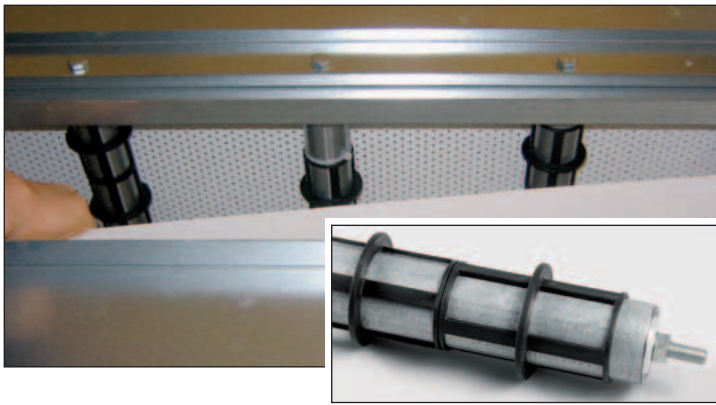
- the drive unit is installed on the outside, which protects it from dirt and facilitates maintenance;
- two easy-to-open doors facilitate cleaning and maintenance works.



### XHD manure belt drive and worm redirection

The XHD manure belt drive features a new pressure unit which makes for an improved power transmission. This way the 1.75 m wide belts filled with fresh manure can be pulled without any problems.

The belts are redirected by means of a worm with both-way direction. It ensures that dust and manure rests are removed from the belts by being transported to both sides for a trouble-free redirection of the manure belt.



## Patented roller bearer

The patented roller bearer consists of a galvanized tube onto which plastic rolls are fitted. They are fitted in such a way that the drying-belt lies on the roller in certain places only. The bearers therefore do not cover the holes of the manure drying-belt and a good circulation of air is guaranteed. In addition, the manure belt is also slightly pulled.

Patented roller bearers for good air circulation and smooth running



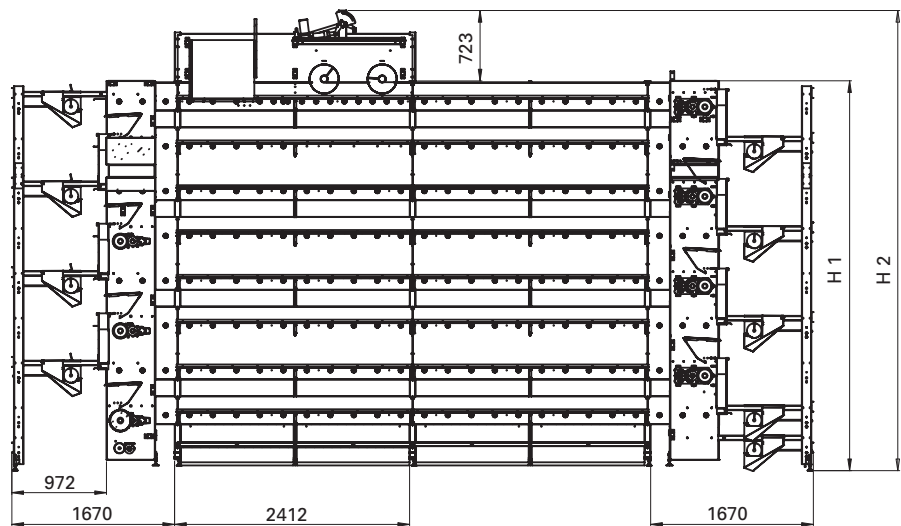
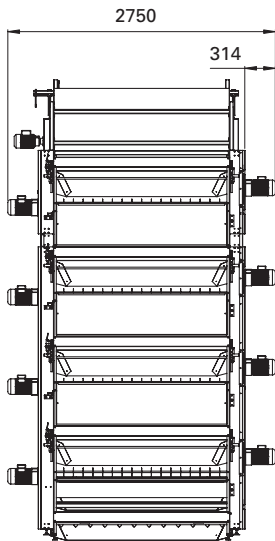
## Suspended flap, perforated manure drying-belts and *one non-perforated* manure drying-belt

Suspended flap with safety function, i.e. in case of damage, every tier is immediately switched off; in addition, the flap serves as dust protection

Perforated manure belts in all tiers for a better drying of manure  
Below the first tier, an additional non-perforated manure belt is installed, which collects dust and small particles that might drop down from the other tiers. When the dry manure is removed, the non-perforated belt is cleaned as well. This way the floor underneath the tunnel stays clean.

## Technical specifications

Tiers	4	6	8	10	12	14
Section height (H1)	2162	3082	4002	4922	5842	6762
Total height (H2)	2885	3805	4725	5645	6565	7485



**Big Dutchman.**

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