Big Dutchman®

xaletto®

The future-oriented straw bedding concept
for animal-friendly and environmentally sound piglet rearing and finishing

Xaletto®

No slurry, no manure runoff, low emissions and truly animal-friendly

Pig production on straw that meets the animals' needs and is still profitable – is that possible? Yes! With the sustainable and animal-friendly Xaletto® straw bedding concept, both piglet rearing and pig finishing are profitable, either in closed houses or in ventilated barns with open-air run.

Xaletto® is the result of a collaboration between Big Dutchman, the feed producer Bröring and an experienced farmer. Prerequisites for the success of the Xaletto®concept include:

- a well-adjusted ventilation concept
- an ideal feeding concept
- optimal water management
- labour-saving straw management

The combination of these four factors helps guarantee your economic success.
Let our experts advise you comprehensively about this and other housing concepts from our PureLine product line.

Xaletto® nursery without slurry channels or slatted floors

A clear structure of the pen is of great importance. Feed and water are ***only*** available on a raised platform. Depending on the width of the building, either a central aisle or an aisle at the side can be planned. There is no limit to the length of the barn.
For mechanised manure removal requiring little work and time at the end of the batch, the pen partitions can simply be unlocked and swivelled to the side. The bottom profile must be withdrawn manually from the bedding. Once this is done, a telescopic handler can easily remove the manure.

View into a pen: everything is ready for the piglets

The advantages at a glance

- ✔ animal-friendly and environmentally sound management system on straw;
- ✔ suitable for undocked pigs;
- ✔ excellent animal health;
- ✔ intensive rooting in the straw for enrichment stops aggressive behaviour among pigs;
- ✔ no slurry or manure runoff: lower building costs for new barns;
- ✔ no unpleasant odours in the barn, 20 percent lower NH_3 emissions compared to standard solid manure systems;
- ✔ 50 percent less straw required compared to the recommendation of the German Association for Technology and Structures in Agriculture (KTBL);
- ✔ the decomposing manure can be composted after the batch, creating a high-quality, nutrient-rich and saleable compost.

Ventilation concept: computer-controlled ventilating and heating

The ventilation concept is similar to that of broiler houses. The high-performance wall or ceiling inlets of our CL series are ideal for creating stable high-velocity ventilation. They provide stable air circulation and supply sufficient fresh air. The exhaust air can be extracted either individually through exhaust air chimneys on the roof or centrally at the gable. Depending on the relevant regulations, an air scrubber may be necessary. The fin heater is the ideal heating system. Its ribbed tubes are installed below the wall or ceiling inlets to save space. The incoming fresh air can thus be heated very efficiently, whenever necessary. The ventilation system is controlled by our 307*pro* or 310*pro* climate computer. The main goal is to remove moisture from the straw bedding constantly.

310*pro* climate computer

Use of the CL 1200 wall inlet and fin heater

Feeding concept: dry feeders and feed with reduced N and P content

Our dry feeding system DryRapid combined with our PigNic*dry* automatic feeders are the ideal solution for feed supply. The feed table has been specially adapted for the Xaletto® system. The formula with reduced nitrogen and phosphorus content leads to high daily weight gains and keeps the pigs healthy. This feed type is a nutrient-reduced LNE diet that contains humic acid. The aim is keeping the pigs' metabolism balanced to prevent unnecessarily high water intake.
Feed and water are only available on a raised platform (0.25 cm for piglets and 0.50 cm in two steps for finishing pigs).

Finishing house: use of the PigNic*dry* feeders with specially adapted feed trough and the DryRapid dry feeding system

Water management: special, sensor-controlled drinkers

Specifically for the Xaletto® system, we have developed a drinker that is designed as a trough, similar to liquid feeding systems. Our reasoning: pigs prefer to ingest feed, as well as their drinking water, from troughs. A fill level sensor ensures that there is always enough water in the trough, but never too much. This reduces water losses to a minimum. The drinker system is controlled by our BD 103 controller. With this controller, you can continuously monitor your pigs' water intake.

Finishing house: use of a trough drinker with fill level sensor for water intake virtually without losses

Straw management: reduced workload with the OlliGes robot

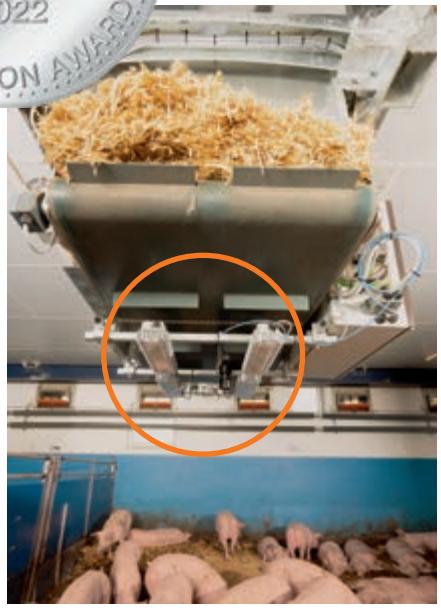
A special straw management combined with a matching climate control system guarantees that moisture is constantly removed from the straw bedding so the straw and manure remain dry. Before the pigs are moved in, an organic activator is added to the straw. This activator starts an aerobic decomposition process: cold composting below 40 °C. The depth of straw remains shallow, with the amount of bedding required being comparatively small. During rearing, around one kilogram of straw is necessary per piglet to begin with, and two kilograms per pig in the finishing phase. Nitrogen and ammonia are bound by the cold composting process so that emissions are lower.

To reduce the workload, we have available an automated solution for re-bedding with small quantities of straw. The OlliGes straw robot developed by Big Dutchman scans the bedding with a camera and automatically dispenses additional straw over spots that are very dark.

The feed/straw ratio is 7:1. This means that one kilogram of straw is added to the bedding for every seven kilograms of feed ingested.

The animals root in the straw and chew on it so it can absorb more faeces and urine.

At the same time, it serves as interesting enrichment material.



Finishing house: using the OlliGes straw robot significantly reduces the working time required for re-bedding with straw. The robot runs along a rail system to reach any location in the barn

Manure removal, storage, composting

After the animals have been moved out, the bedding is removed from the barn. A telescopic handler is the ideal tool for this task. The decomposing material, which largely consists of straw and manure, has a dry matter content of 40 to 50 percent. This valuable organic fertiliser is perfectly suited for improving poorly-structured soils with low humus levels. In addition, transport costs are significantly lower compared to slurry. For piglets, approx. 150 kg of manure can be expected per place and year, and around 500 kg for finishing pigs. The longer the pigs lie on the straw bedding, the more it consolidates.
For the subsequent composting process, we recommend mixing the decomposing material with wood chips and then sanitising the mixture for approx. 72 hours at temperatures above 70 °C. The full composting process takes several months.

During the batch, a cold composting process occurs at temperatures of approx. 30 to 40 °C

The straw bedding is approx. 20 cm high for piglets and approx. 50 cm for finishing pigs

The decomposing material can be used in a variety of ways directly after removal from the barn

The composting process creates a valuable humus fertiliser

Air cleaning: with the PURO-X air scrubber

PURO-X is a two-stage, chemical air scrubber that Big Dutchman developed specifically for Xaletto®. The scrubber removes dust, ammonia and odours from the air in the barn.
PURO-X has been certified by the German Agricultural Society (DLG, test report no. 7243). The scrubber achieved the following separation rates:

- ✔ >80 % of ammonia (annual average);
- ✔ >80 % of total dust (annual average);
- ✔ odour concentration in clean gas ≤ 300 OU/m³;
- ✔ no untreated gas perceptible in the clean gas.

PURO-X is available with an intelligent modular design, which has the following advantages:

- ✔ easy-to-plan assembly times;
- ✔ lower construction costs;
- ✔ lower installation requirements;
- ✔ single-part plastic housing for reliable and long-term impermeability;
- ✔ high resistance to acids, alkalis and process water;
- ✔ checked functionality.

ANERKANNT 2022 DLG WWW.DLG.ORG
FULL TEST
BIG DUTCHMAN AIR CLEANING SYSTEM PURO-X
DLG test report 7243

Xaletto® barn with PURO-X air scrubber

Pre-installed technical room with control box

Acid storage and acid dosing

Pressure corridor with upstream StuffNix dust filter

An important advantage of PURO-X's modular design is the technical room with optimal dimensions. This room is pre-installed by the manufacturer. All necessary components, such as the pH value sensor, the conductivity sensor, the meters for measuring fresh water and desludge water, pumps, piping and the control box are cleverly installed for a good overview. Maintenance is thus made very easy. The compact technical room is leak-proof and resistant to acids and alkalis. To store the sulfuric acid, we recommend using double-wall IBC plastic containers. They are available for lease and easy to handle and to exchange. The acid is added by an automatic dosing pump based on the pH value of the wash water.

Between the gable and the air scrubber, a pressure corridor is required. This corridor sucks in the exhaust air coming from the barn and pushes it through a dust filter. The pre-cleaned air then enters the actual air scrubber and passes through two cleaning stages.

Fans push the exhaust air through the filter bank; an impact net ensures good distribution of the air

On the left: filter bank, on the right: droplet separator

On the left: droplet separator, on the right: biological filter bank with brushwood filling

PURO-X consists of two cleaning stages. Fans force the exhaust air through the plastic filter bank, which is continuously sprayed with water from above. The addition of sulfuric acid causes the ammonia absorbed in the wash water to react to ammonium sulfate. An automatic dosing pump adds the acid based on the pH value of the process water. Due to the special structure of the filter bank, the achieved separation rate is very high. The second cleaning stage, a biological filter bank with brushwood filling, significantly reduces odours. Regular moisturisation guarantees a permanent and good functionality.

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