

concept **study**

PIG PRODUCTION

2030

BIG DUTCHMAN



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Preface

There is hardly any other industry in Germany and the EU which is influenced by consumer expectations, new legal regulations and the critical opinion of the public as livestock farming.

This is why it is of great importance to identify those trends out of today's hustle and bustle that may be relevant to the future – and to think ahead with these in mind.

While drawing up Big Dutchman's concept study **Pig Production 2030**, this thought played an important role.

The basic idea of our concept? **Free movement for pigs – through all stages of their life.** The ambitious goal is a professional and profitable pig management without restriction of the pigs except for situations which call for the special protection of individual pigs.

Furthermore, we aim effectively to strengthen groups of young pigs – as soon as possible and continually!

The **Pig House of the Future** provides a practical basis for discussion and encourages the viewer to get actively involved in the further development of livestock farming. It is possible that some components of the concept house will never reach the market because they have simply not been practical. But this is quite normal for a concept study: Ideas come to mind and are tried, further developed or dismissed.

In the end, what counts is that we accept new challenges and take the lead and that we are the ones who define future topics. Get involved!

P.S.: This housing concept provides an exemplary house for a group of 60 animals. We believe that the whole system can just as well be used in a larger frame. Our first experiences with the test house look very promising!



Revolving unit

SonoCheck | SowCheck

At the core of the housing concept lies the revolving unit SonoCheck/SowCheck, in combination with Big Dutchman's feeding-on-demand system CallmaticPro. The feeding station, well-proven the world over, takes care of all 60 sows reliably, automatically and individually.

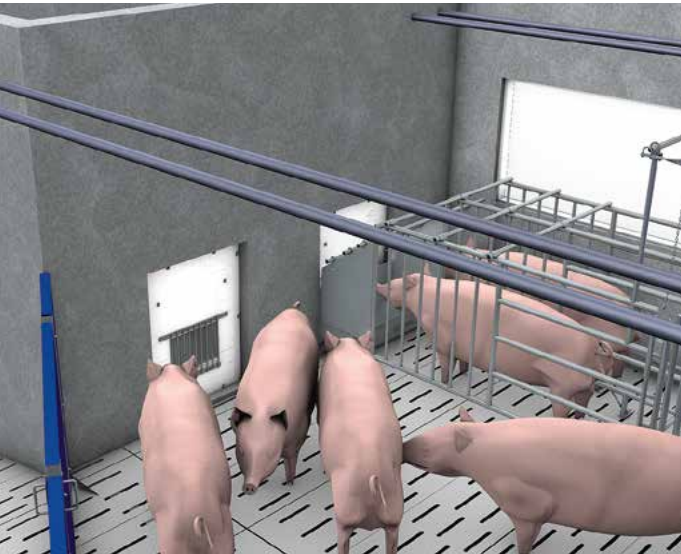
CallmaticPro has been expanded by introducing a pivoting device to guide the animals at the entrance as well as a third exit.

SonoCheck and SowCheck are management aids and each system has already been awarded the DLG Innovation Medal in Gold and Silver respectively. In the concept study, these innovations are combined in a way that they provide automatic and alternating additions to the housing system.



The new SowCheck system analyses and recognises when the sows are in heat by taking a look at what their senses perceive – automatically, without causing them stress and with a very high success rate. The animals are analysed and automatically selected nearly incidentally by technical and natural measures while the sows are staying inside the feeding station. Two lateral rolls move up and down on the side of the sow while a third roll simulates the boar's breast after he jumped on the sow. At the same time, the sow under examination has direct visual, acoustic and olfactory contact to the boar via an opening between her and the boar's pen.

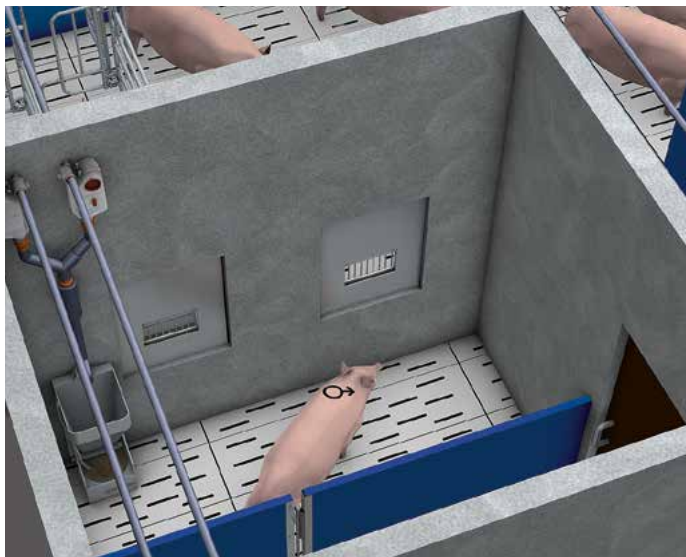
Hogging animals as well as animals returning to heat can be identified more reliably and faster than ever before. They are immediately separated and led towards the insemination area. SonoCheck examines the sows around the 25th gestation day and notifies the operator if the insemination was successful. In accordance with the result, the pigs are guided to the respective areas – also fully automatic and with 90 % accuracy for pregnant sows.



Insemination area

The hogging sows' stay in the insemination area should be as short as possible. The sows are only separated during the few days around the time of insemination. They are inseminated in groups after the contact elements to the boar have been opened.

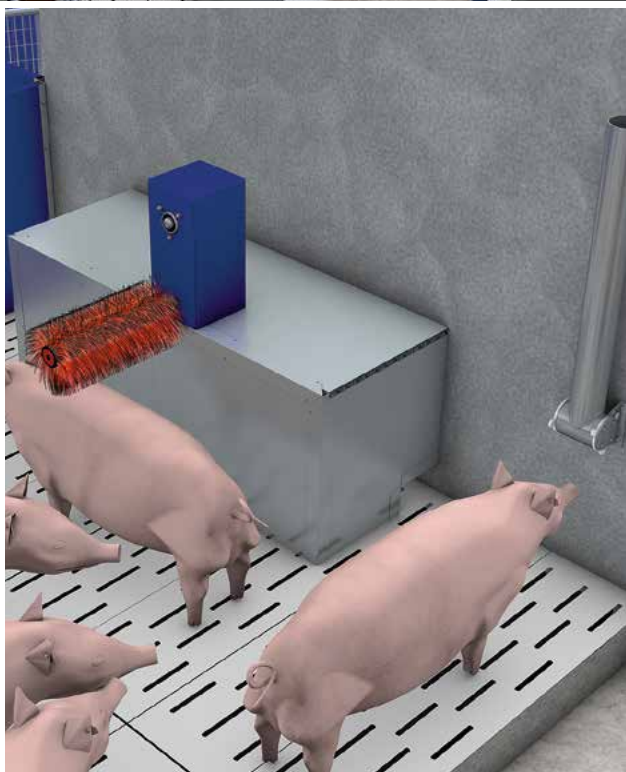
Two individual stalls are available for sows who have to be integrated into production or separated for a few days for their own protection.



The **boar**

Even the **Pig House of the Future** needs real men. The boar is essential for stimulating the sows during insemination.

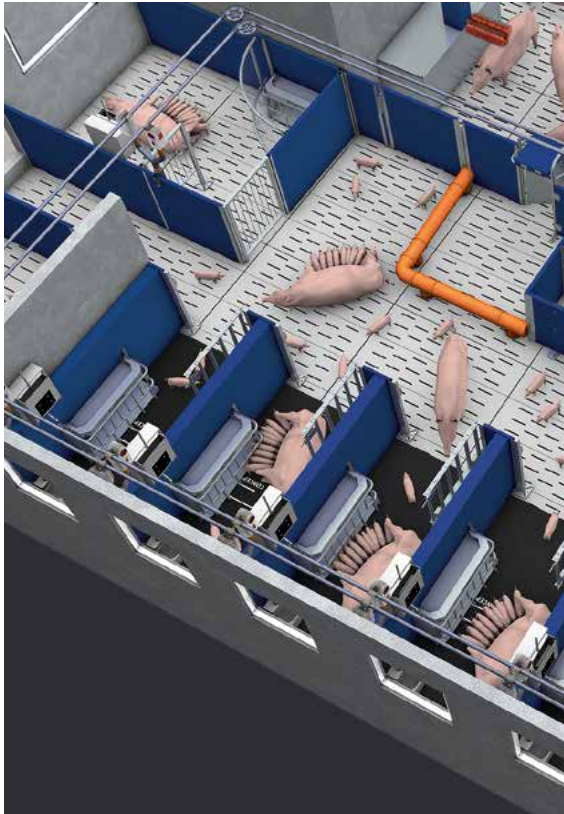
Gilts can be placed in a space next to the boar stall for contact and stimulation.

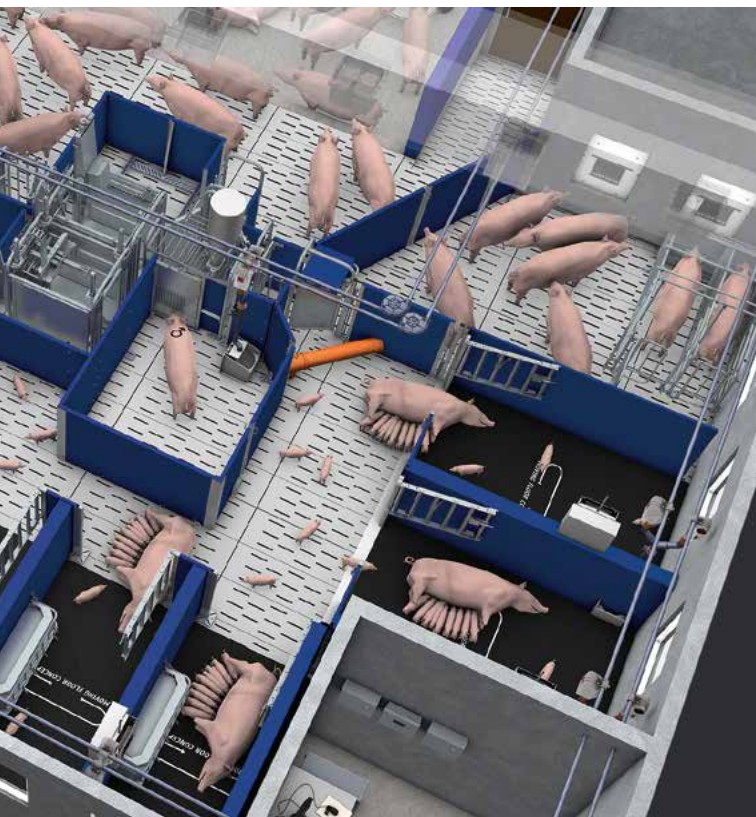


Waiting area

Today's state of the art for Europe: In the waiting area, sows in all stages of pregnancy are housed in groups. Each animal requires an area of 2.5 m². Some exciting ideas of our concept study in more detail:

- | floor heating is incorporated into the sows' resting area
- | enclosed floor areas are cleaned by a cleaning robot and new bedding is immediately supplied in the lying area
- | Big Dutchman's new playing rotor engages the pigs' attention for a long time (the upper part provides room for short straw, fine sawdust or feed which is spread over the floor when the pig uses its snout to play with the rotary feeder)
- | an animal-friendly massage brush is installed on the inlet for exhaust air cleaning under the floor





Farrowing area

The next highlight of the concept study is the free-movement farrowing system with subsequent group housing. This area is divided into three parts:

- | the meeting pens
- | the farrowing area
- | the exercise area

Meeting pens

A sow which farrows for the first time will do this in the meeting pens as no one can know how she will react to the piglets. Does she have good maternal instincts? How do the piglets and their mother interact? Are there any problems?

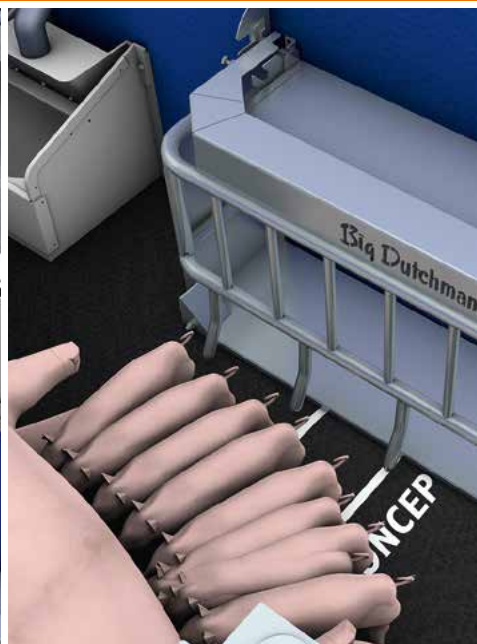
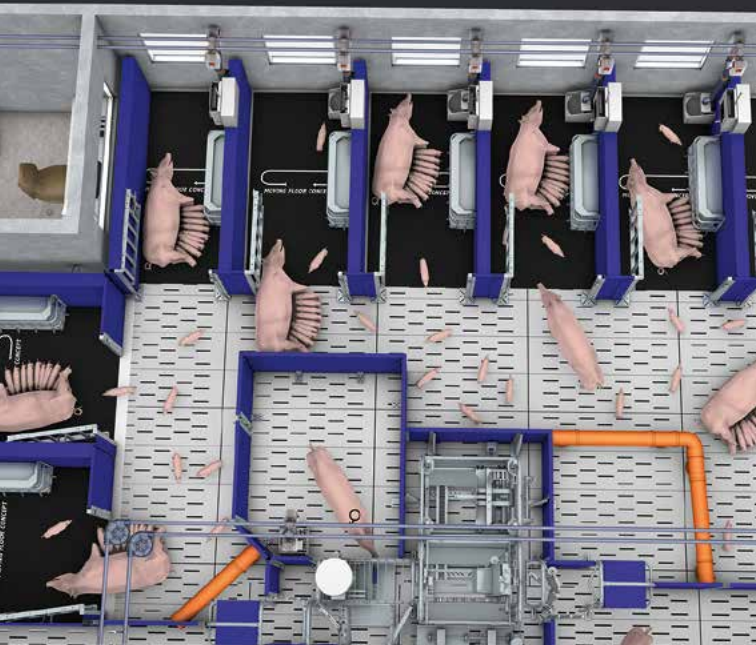
The layout is based on a free-movement farrowing system in which the animals can move around freely. The piglet nest is situated behind a protection bar.

If any problems with the sow occur, she can be separated to protect the piglets. If the sow shows mainly good instincts, the mother and her piglets can access the exercise area after a few days.

An interesting product detail for the future: The pneumatic dry feed dispenser. The sows can decide individually when they want to eat small portions of fresh feed.

The special advantage of this idea: It allows for automatic feed curves as well as monitoring the feed intake of the animals.





Farrowing area

The farrowing area with its free-movement farrowing system has been designed with two different pen sizes in the concept study **Pig Production 2030**. Six pens are of a normal size, two pens are larger to accommodate larger and older sows.

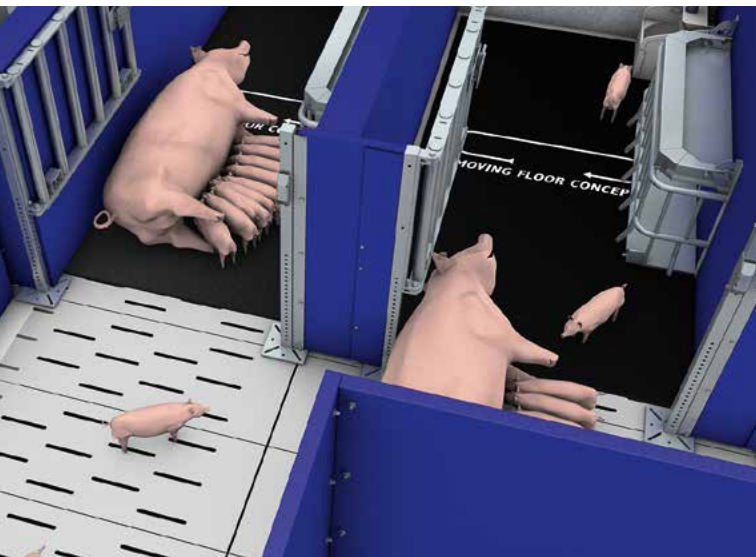
Each farrowing box is equipped with drinking trough, feeding system, piglet cover, movable floor, sudden-descent protector and a special door. We call this door a Dutch door because it is possible to keep the lower part of the door closed. This ensures that the piglets cannot escape the pen.

The sudden-descent protector is attached to one side of the pen. It protects the piglets when the sow is in the process of lying down.

The young pigs can retreat to the piglet nest. A warm-water heating plate guarantees the warmth needed in the nest.

Intelligent water management is an important part of the drinking trough for lactating sows used in the study. The RFID antenna detects the animals and a water meter records the amount of ingested water, thus any water wastage is noticed immediately.

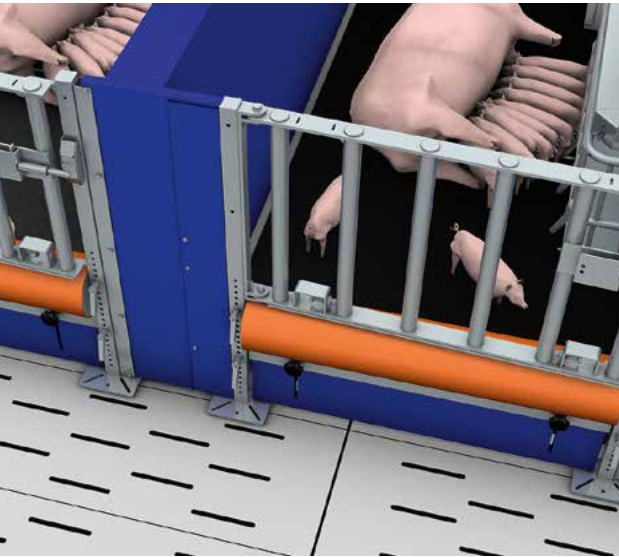
The highlight of the farrowing area: To keep the farrowing box clean, a movable floor which removes the manure automatically and continuously is installed. The floor moves in intervals only for a short moment when the sow is standing at the drinking trough, signalling that the piglets are either active or in the nest.



Farrowing pen [open]

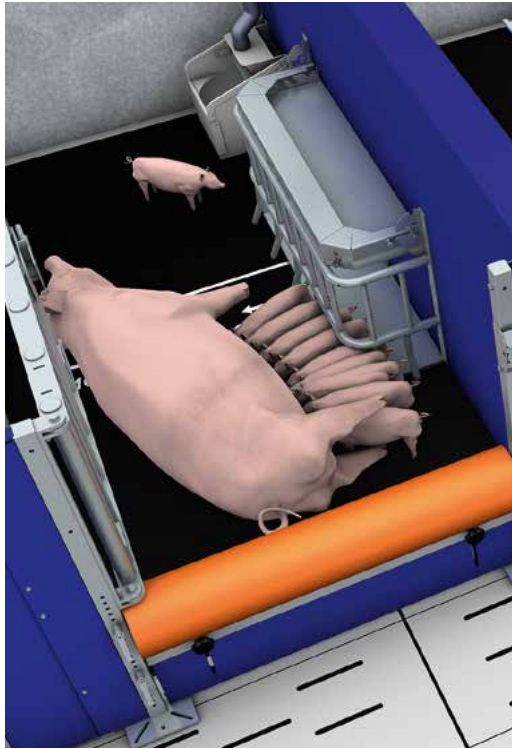
In two phases, the farrowing pens are opened completely. For one, this happens when the animals are moved from the waiting area to the farrowing area. The sows choose the pen they prefer. They are only isolated shortly before farrowing.

As soon as nine days after farrowing, the pen is opened for the second time. Sows and piglets can now move freely in the exercise area.

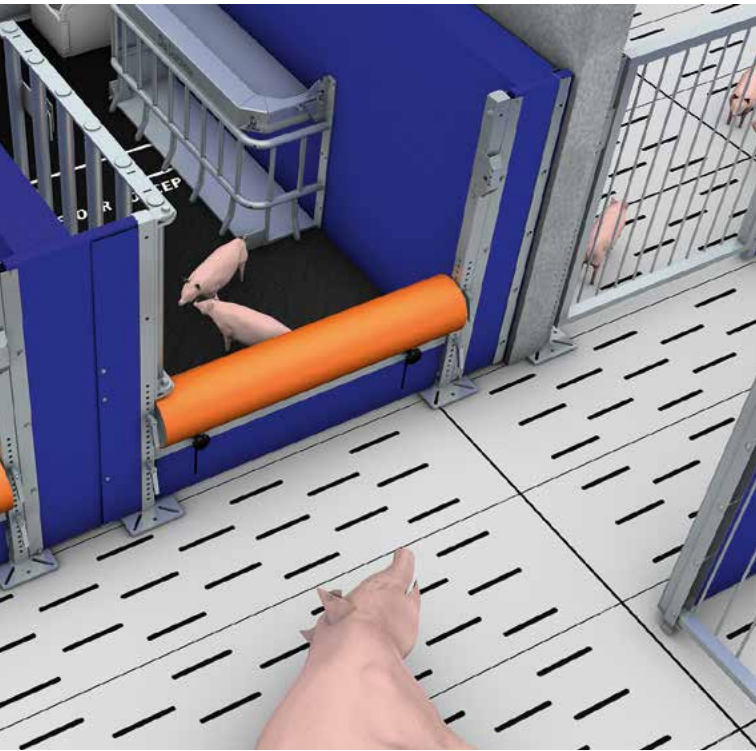


Farrowing pen [closed]

For farrowing, the Dutch door is closed completely. This ensures that the sow is not irritated by other animals while farrowing. The door stays closed for the first three days so that sow and piglets can form a bond. The piglets learn to recognise their mother's smell and sounds. This is of great importance in a later phase.

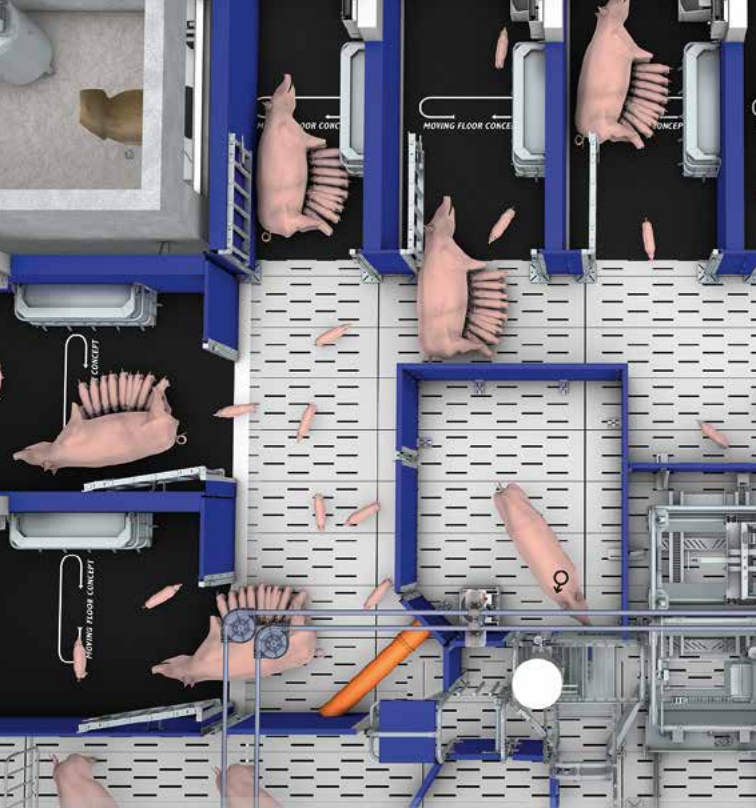


Farrowing pen
[Dutch door mode]



Mid-suckling period, the door can be used in the **Dutch door mode**. This means that the sow can leave the farrowing box and move around in the exercise area with the other sows. At this point – between the 3rd and the 9th day after farrowing – there are no piglets in this area.

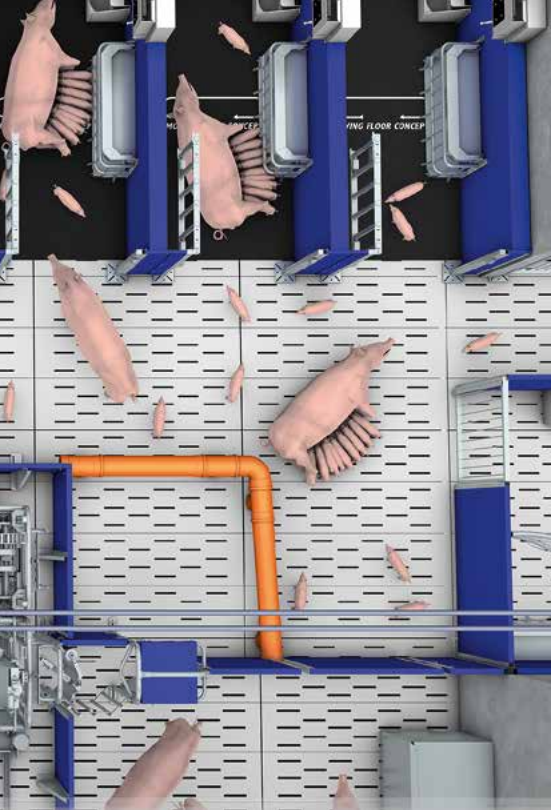
The sows seem to enjoy being able to leave their boxes to defecate, urinate or to simply be alone for some time. It is no problem at all for them to find their box with their piglets again.



concept study

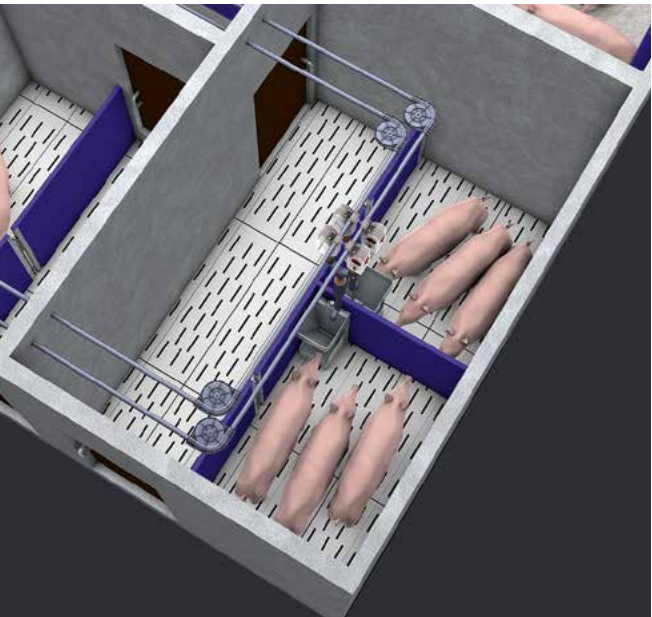
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2030
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Exercise area



What happens in the exercise area could be described as **organised chaos**. It starts when the piglets are nine days old and the Dutch door is completely opened. In groups, the young pigs discover their new and much larger environment. This means that the piglets are immunised a lot earlier than is common practice today. This process takes place before the piglets are moved to the rearing area.

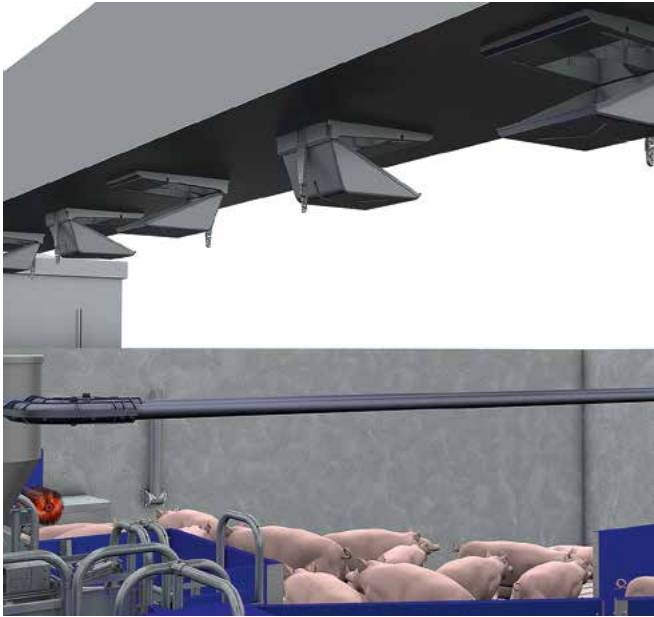
The group of up to ten sows spends the rest of the suckling period like this before the piglets are weaned. Protection bars stop the piglets from getting lost in the area of the feeding stations.



Integration of gilts

For the future, it is just as important to think about a balanced age structure in the herd! Different age groups are accommodated in this area so that it is not necessary to buy new animals in case of a lack of own breed.

The integration area is to be situated as near as possible to the boar. This way, he can be used to check for the gilts' heat.



Fresh air with filtration pads

Everyone is talking about exhaust air cleaning today – but for tomorrow, we are already thinking about filtering fresh incoming air to ensure animal health. The filtered fresh air is directed into the house via an air duct and several ceiling inlets. The filtration pads will be installed at the far ends of the duct.



Exhaust air washer JagixX

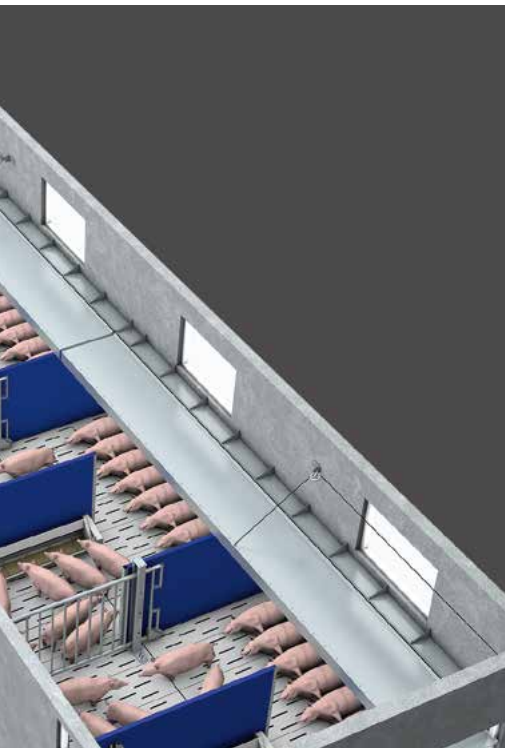
The cleaning of exhaust air is one of the latest topics in today's pig production. In our concept study, we present JagixX, the next generation of three-stage exhaust air cleaners, which impresses with its compactness and which is delivered nearly ready to use. This means that a complicated expansion of the solid building envelope is not necessary. More than 250 JagixX-units are already in use and working successfully.

The reason for the smaller size of the cleaner mainly lies in the clever positioning of the third cleaning stage. This stage is situated horizontally above the first two filter banks which are positioned vertically to the airstream as usual. All control and other equipment for operating the washer are situated in the technical room integrated at the side.

For the future, the exhaust air may even be drawn from under the house's floor. Systems for heat recovery are also possible. Another addition to the future pig house may be a silencer in the upper outlet area to minimise not only the emission of smell and dust but to also reduce any noise emissions.

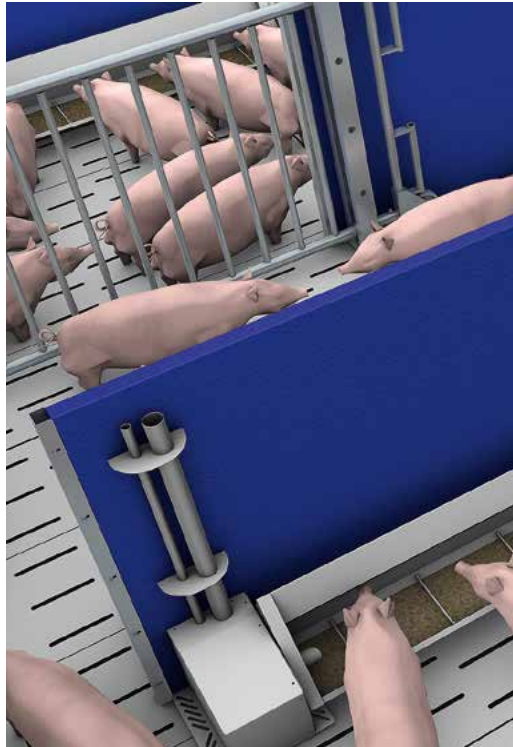
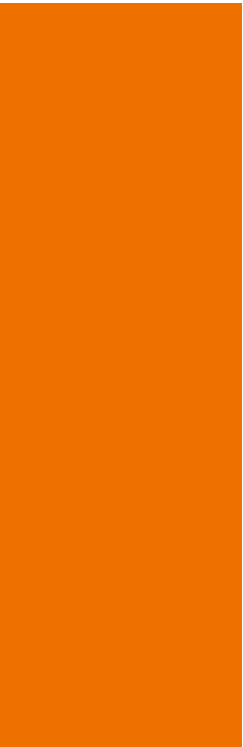


Rearing area



The piglets are moved directly to the rearing area after weaning. The group can be kept together here. Each age group has its own area. It is feasible to house the piglets separately according to their sex.

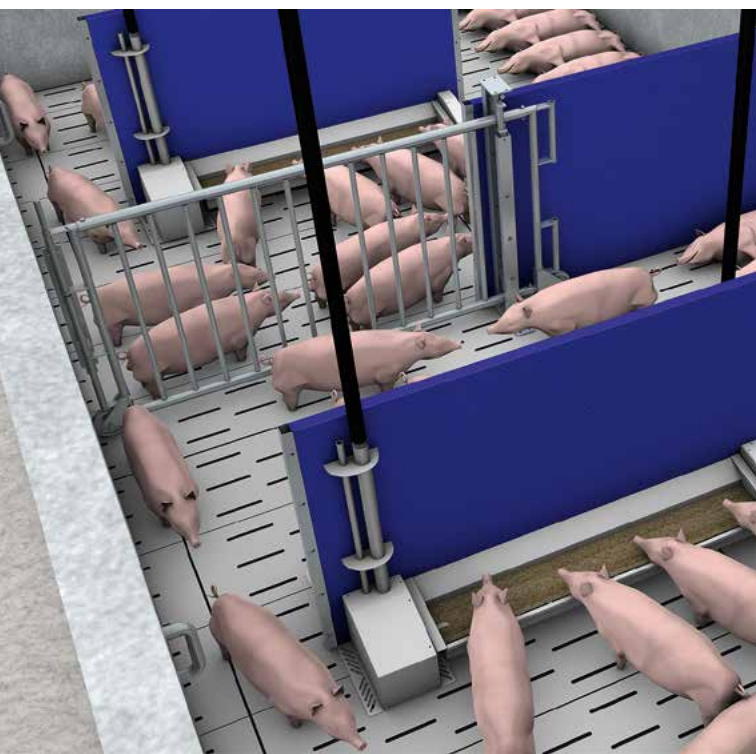
The whole rearing area is designed as a wean-to-finish house. Animals are moved in at the weaning age and only leave the area when they are sold. This means that transports and moves between different houses can be avoided. This system is efficient and profitable thanks to intelligent room management.

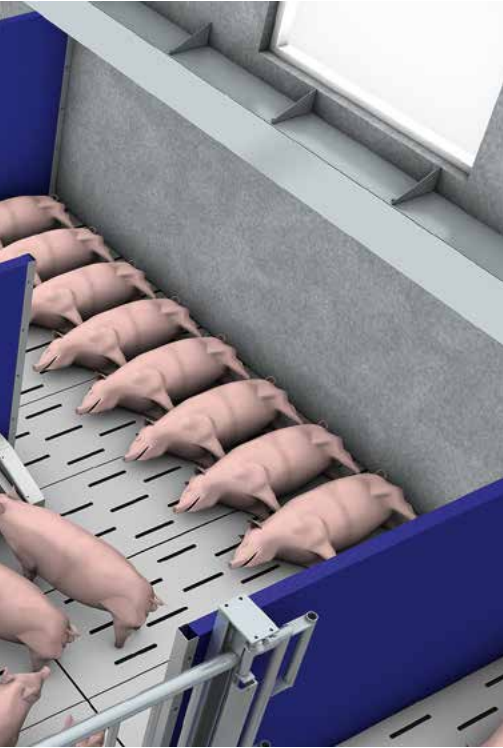




Rearing pen [start]

In the first rearing phase, the piglet cover is closed to create an agreeable temperature for the young pigs. The new feeding trough (cf. p. 35) has been exactly adapted to the special needs of the piglets. Climate and feeding are adjusted to these needs as the piglets grow.



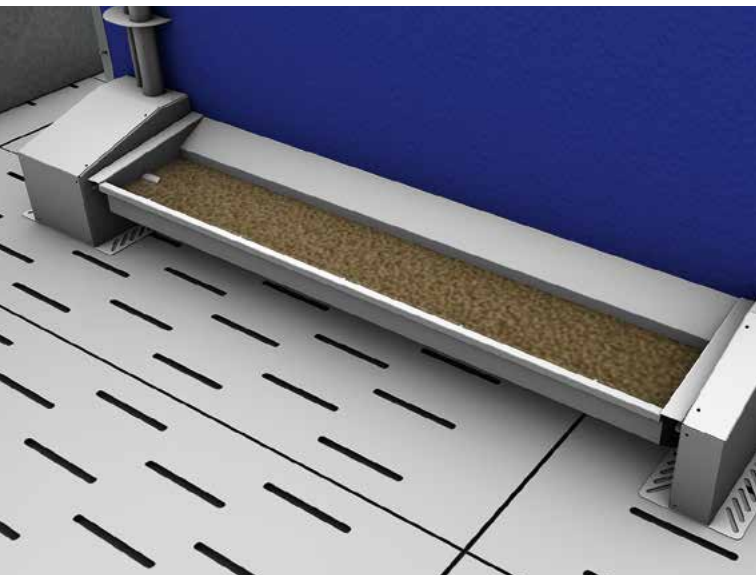


Rearing pen [end]

The older the animals are, the better they can cope with their environment. Very soon, a microclimate is not necessary and the piglet cover can be lifted. Later, the pigs naturally need more space: the group is divided when the pigs have reached a weight of about 30 kg.



Trough



Each pig needs a feed location perfectly adapted to its individual size. This is one of the most important requirements for the wean-to-finish method – and often enough the disqualifying factor in the decision for or against this housing system. Keeping this in mind, the liquid feeding trough presented here is a special highlight. The idea: The trough **grows** with the pigs! And the pens' drinking troughs do the same!

At the beginning of the rearing phase, the trough is as low as possible and at the same time handles the smallest feed quantity. Trough height and volume are constantly adjusted in accordance with the growth of the pigs. In the final position, the trough is as high and its capacity as large as possible.

By the way: The liquid feed is metered by an easy to maintain valve and fills the new trough from its narrow side.

INSEMINATING



Pictures from
practical experience



WAITING





Pictures from
practical experience



FARROWING



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