

Side mode Heating 15 %

0.61 m3/animal/h

10 %

2 groups | 14 pa | 10.5 %

View details >



Production Last 48h

Line graph showing weight gain over time: 148 g at -48h, 177 g at -24h, 210 g at Now.

Weight	▲ 33 g	210 g	>
Feed	▲ 4 g	35 g	>
Water	▲ 5 ml	63 ml	>

Mortality 0.8 % ▲ 0.03 % > | Animals 53,189 ▼ 18 >

View details >

Temperature 33.3 °C | 33.5 °C >

Humidity 55 % | 56 % >

CO2 1,150 ppm | 1,147 ppm >

# Climate and Farm Management

## Broilers & Breeders



# SKOV

Climate for growth since 1966



Leo Østergaard, CEO, SKOV A/S



Østergaard, where it all started.

**SKOV contributes to efficient and sustainable global food production that delivers healthy food produced in respect to animal welfare.**

We provide climate solutions, farm management, and digital value chain services for animal production worldwide.

When partnering with SKOV, we are with you from the design phase to the final project. You will have a partner who can translate knowledge into solutions that will increase your livestock production and profit.

*"We work for optimum conditions for animals, people, and the environment. Our systems can be adapted to all types of buildings and are reliable and efficient under all climatic conditions."*

– Leo Østergaard, CEO, SKOV A/S

# SKOV

## Worldwide presence

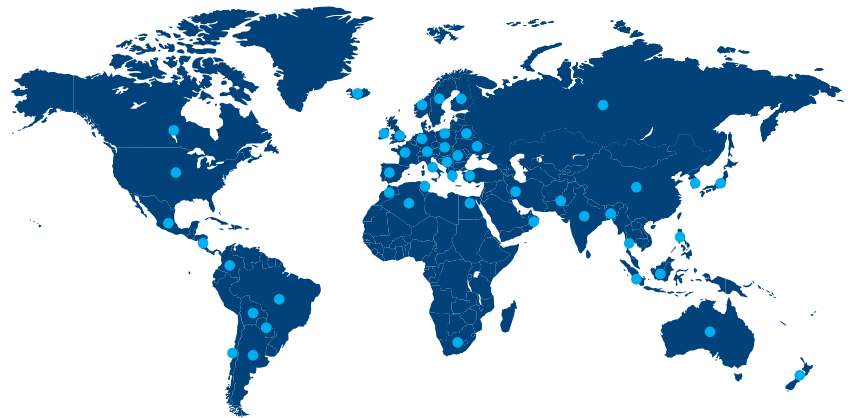


SKOV Headquarter, R&D, Testcenter & Production. Glyngøre.

It is important to know the conditions under which the system must be installed to fulfill customer requirements and their needs for a well-functioning system.

It requires a thorough knowledge of the local conditions, including climate, legislation, building styles, etc.; at the same time, it is also advantageous to be close to the project.

Furthermore, the customer should have access to advice from SKOV, and be able to enter into discussions, at all times, which is why we have built an extensive network of distributors and service partners to cover all time zones.



# Why SKOV

## Company DNA



### Future-proof products

Our products are developed and refined in collaboration with farmers worldwide to meet your exact needs in your production.

### Big data – great value

Our data-driven solutions enable you to follow and adjust the conditions in your livestock house in real time.

### Tested to last

Our products go through significant test processes before being launched to the market. We measure product performance on a 1:1 scale at our air physics test center.

### Made in Denmark

We produce all SKOV controllers in Glyngøre, Denmark, in an efficient, modern, ISO-certified electronics production that ensures high-quality products.

### Customized solution

Our projecting department transforms your ideas and wishes into system solutions in close collaboration with you and other relevant partners.

### On-time delivery

We emphasize the importance of timely and correct delivery. Our logistics center ensures delivery of all domestic and worldwide shipments on schedule.

### Financial support

Our finance department can help you realize your project with the best financial terms.

### One point of contact

Your SKOV Project Manager follows up on schedules and deliveries and ensures that the goods are delivered on time.

### Make it work

The installation is in safe hands when our technical fitters are in charge. We can also offer to supervise the installation if you and your staff prefer to do the installation yourselves.

### Help to get started

We are with you all the way and make sure that you and your staff are briefed and instructed on the best use of the ventilation system.

### SKOV Academy – Let's go training

We conduct training sessions at our headquarters in Denmark and on farms all year round, worldwide.

### Service 24/7/365

You can expect to have a speedy and expert service when needed. Either by SKOV service personnel or through our many distributors and their staff.

### Continuous operation

We are with you all the way and ensure that you and your staff are briefed and instructed on the best use of the ventilation system. Regular service ensures that your production runs optimally with no downtime.

# Introduction to ventilation

## Climate for Growth



## Correct control of ventilation is key to success

The livestock house climate is one of the most critical factors for the animals' well-being.

It puts high demands on the ventilation system, ensuring the correct temperature, air quality, and humidity, regardless of the climate conditions. Optimum climate ensuring optimum comfort zone - temperature range where animals do not feel too hot nor too cold.

If the temperature is too low, the birds will use additional feed keeping the body temperature instead of using it for growth. The distribution of animals in the house will not be uniform, which will negatively affect the litter-

Too high temperature will reduce the feed intake, and the birds will drink more water.

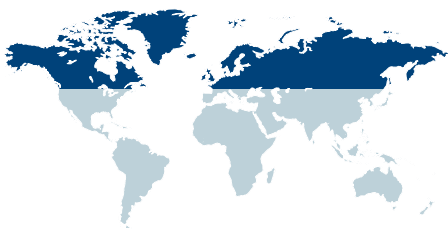
Also, here the growth will be reduced. Small birds are more sensitive to a wrong climate than older birds. But it is important to have the right climate for all types and sizes of animals.

### Correct and efficient ventilation contributes to:

- Better feed utilization
- Higher growth
- Shorter production time
- Higher yield per m<sup>2</sup>
- Reduced use of medical products
- Less illness and higher welfare
- Lower mortality rate
- Lower energy consumption

# Low Power Ventilation

(LPV) System



## Correct control of air direction, volume, and velocity

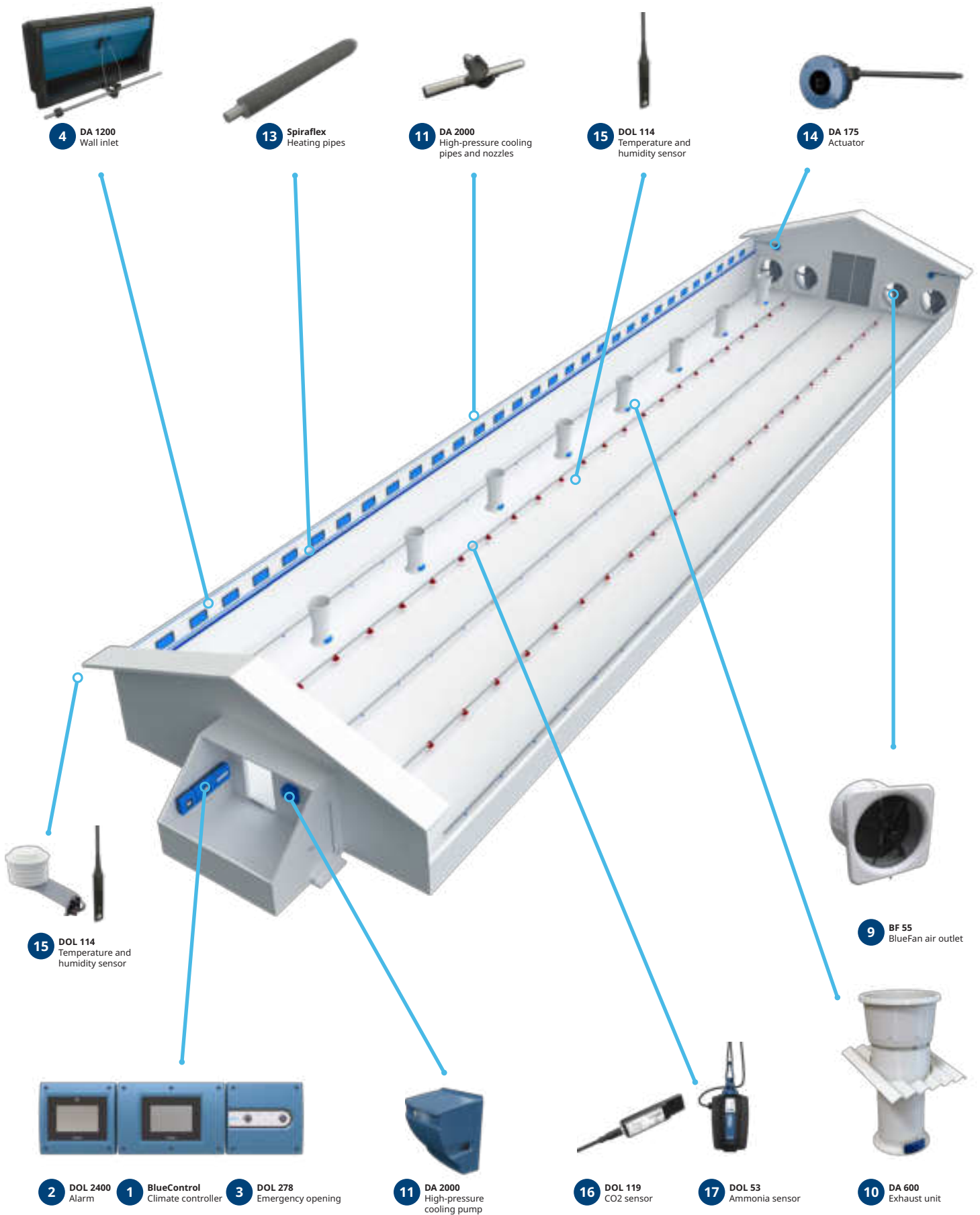
The LPV system is a classic negative pressure system used for ventilation of poultry production facilities. The system is intended for temperate regions of the world and can be adapted to most livestock houses.

During cold periods, fresh air is mixed with the housing air before reaching the area occupied by the birds. During warm periods, the air is sucked into the livestock house at a higher speed resulting in air circulation around the birds.

### Benefits:

- Uniform climate all year round for the birds
- Low energy and heating consumption
- Low running costs, efficient chimneys, fans, and control principles
- Emergency opening system for maximum security
- Easy to install and low maintenance costs





# Combi-Tunnel (CT) System



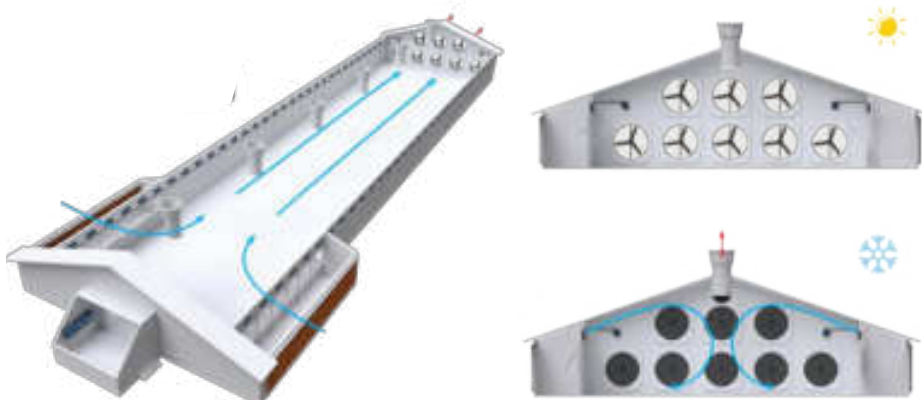
## The best productivity conditions in a changing climate

Combi-Tunnel is a fully automatic all-weather system that provides the best productivity conditions when the outside temperature changes from very cold to very hot.

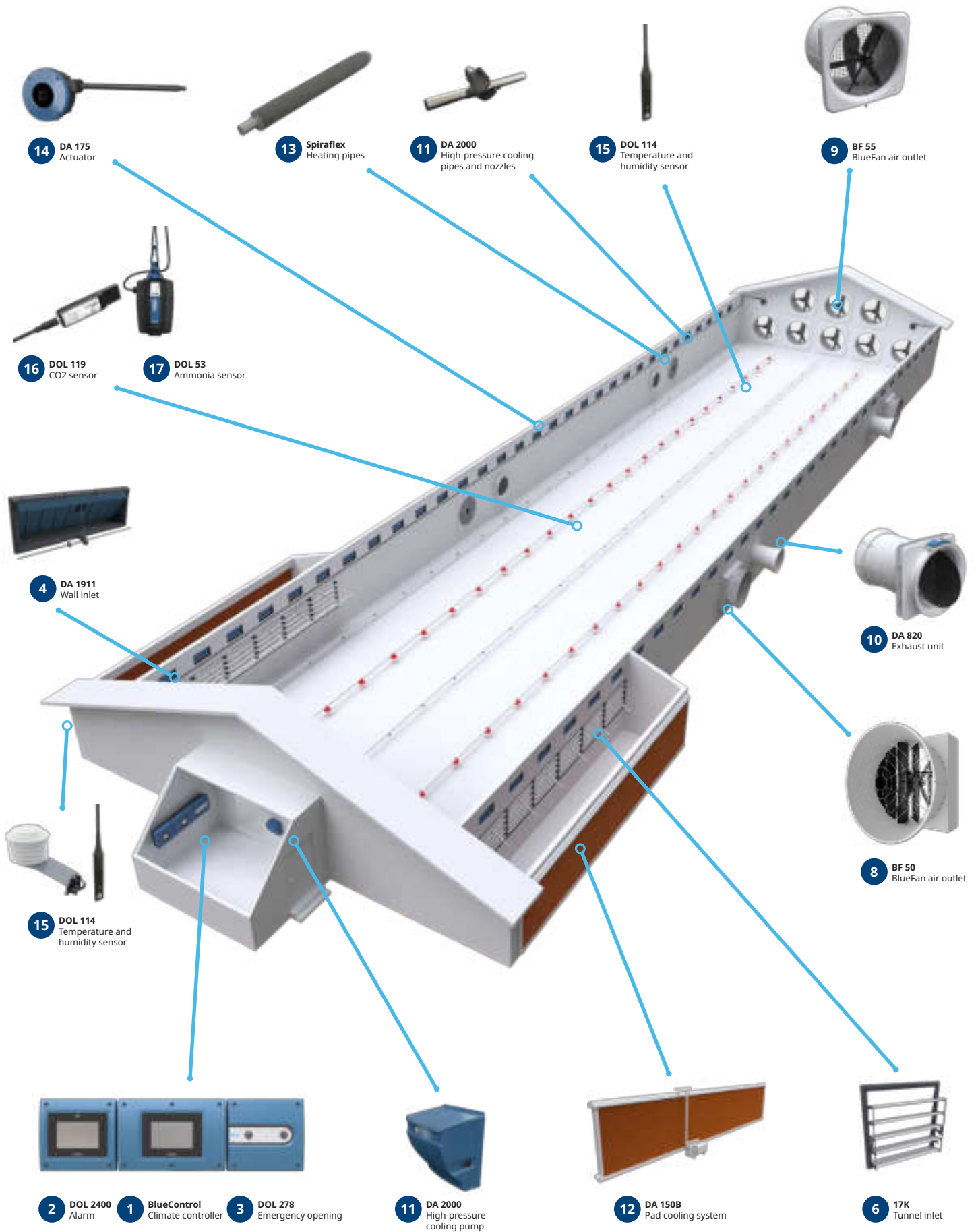
When the outside temperature is low, the system keeps the temperature and air humidity at an ideal level by removing excess humidity and heat generated inside the house. When the outside temperature is high, the system cools the animals via air velocity and cooling systems.

### Benefits:

- Automatic adaption to outside temperature and age of the birds
- Closed production environment
- Controlling temperature, humidity, air velocity, and air quality
- Same climate all over the house during cold periods
- Using air velocity as a chill effect during hot periods







14 DA 175 Actuator

13 Spiraflex Heating pipes

11 DA 2000 High-pressure cooling pipes and nozzles

15 DOL 114 Temperature and humidity sensor

9 BF 55 BlueFan air outlet

16 DOL 119 CO2 sensor

17 DOL 53 Ammonia sensor

4 DA 1911 Wall inlet

10 DA 820 Exhaust unit

15 DOL 114 Temperature and humidity sensor

8 BF 50 BlueFan air outlet

2 DOL 2400 Alarm

1 BlueControl Climate controller

3 DOL 278 Emergency opening

11 DA 2000 High-pressure cooling pump

12 DA 150B Pad cooling system

6 17K Tunnel inlet

# Tunnel System



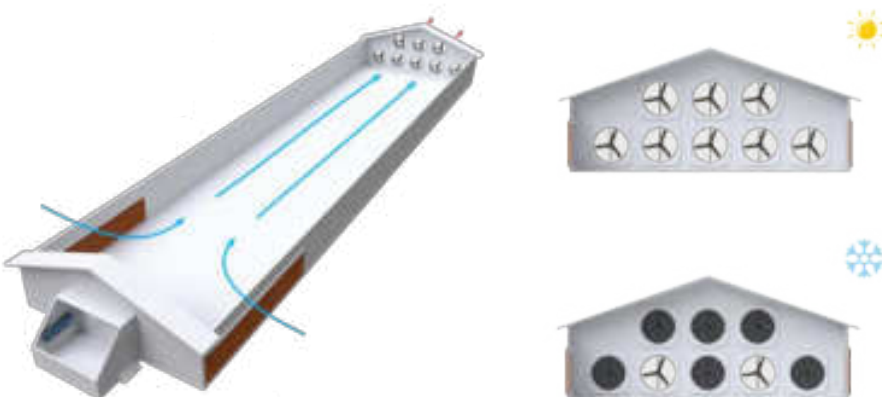
## A simple system that cools the birds

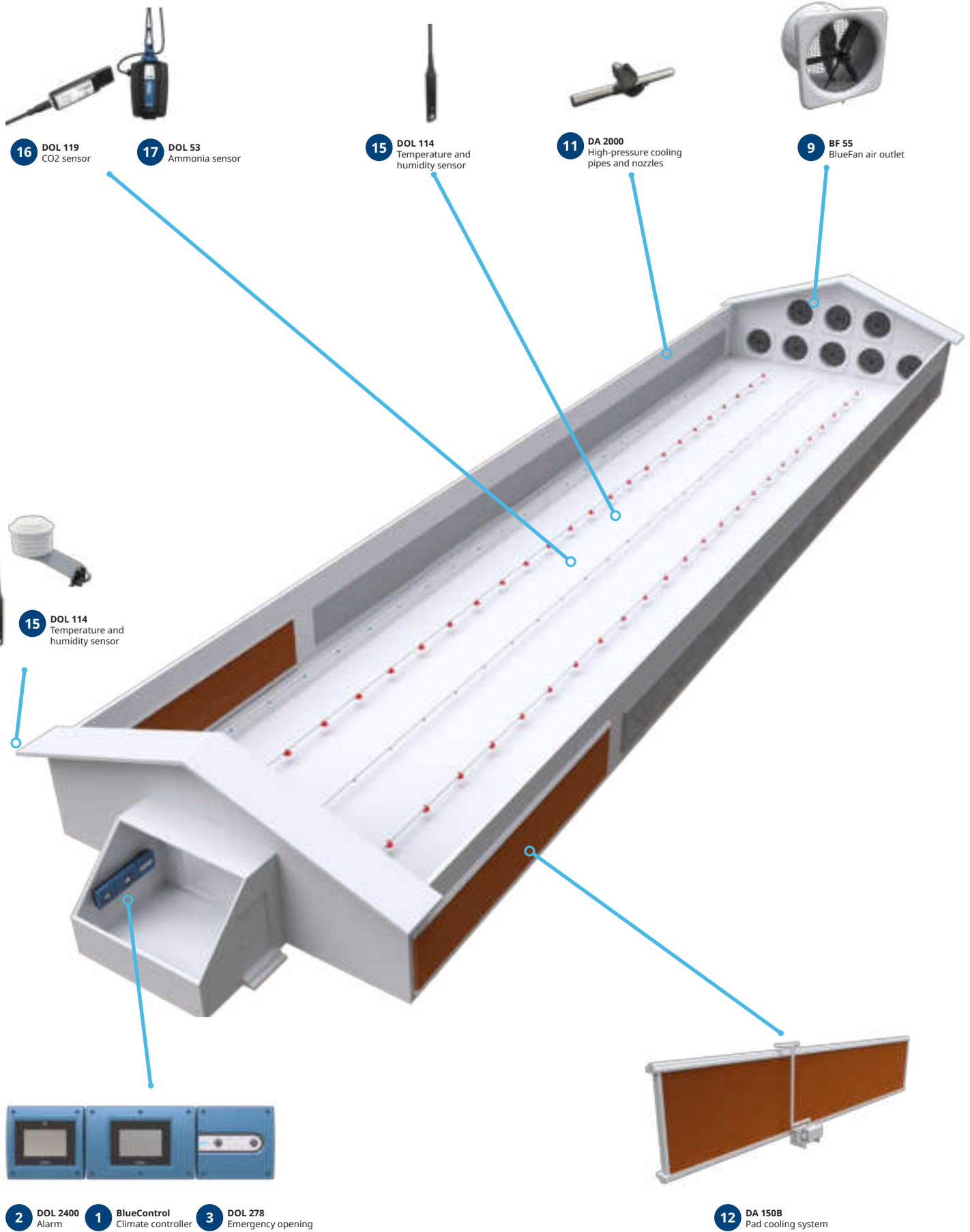
With SKOV's Tunnel ventilation, you ensure the correct temperature in the livestock house, despite high outside temperatures.

In a Tunnel ventilation system, the air intake is placed in the sides or at one end of the building. The air intake is lined with cooling pads. At the opposite end of the tunnel opening, large gable fans create a cooling air current (chill effect) along the longitudinal direction of the livestock house.

### Benefits:

- Low initial costs
- Perfect system for tropical regions due to high air velocity with chill effect and cooling control
- A cost-effective way to cool down birds in a tropical climate
- Advanced cooling control providing a stable climate
- The system efficiently removes excess heat and undesirable gases





16 DOL 119  
CO2 sensor

17 DOL 53  
Ammonia sensor

15 DOL 114  
Temperature and  
humidity sensor

11 DA 2000  
High-pressure cooling  
pipes and nozzles

9 BF 55  
BlueFan air outlet

15 DOL 114  
Temperature and  
humidity sensor

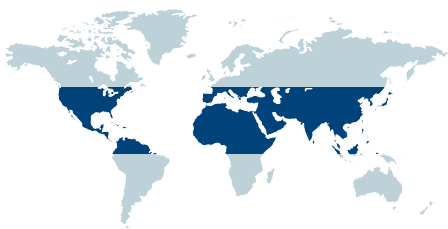
2 DOL 2400  
Alarm

1 BlueControl  
Climate controller

3 DOL 278  
Emergency opening

12 DA 150B  
Pad cooling system

# Tunnel-Plus System



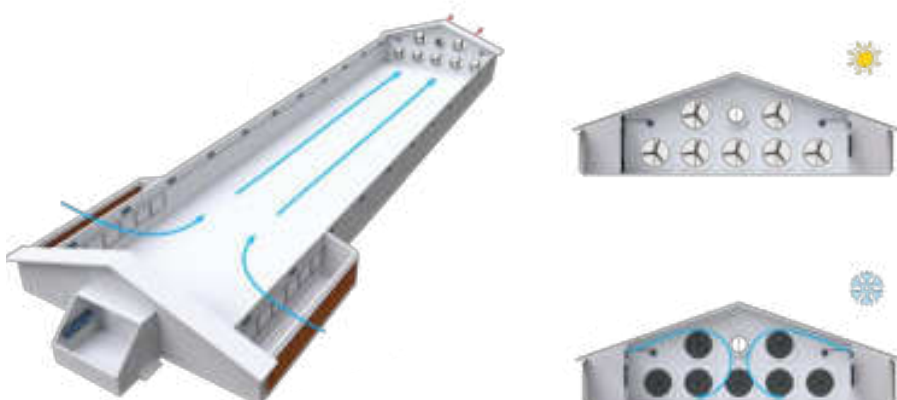
## Developed for production in a tropical climate

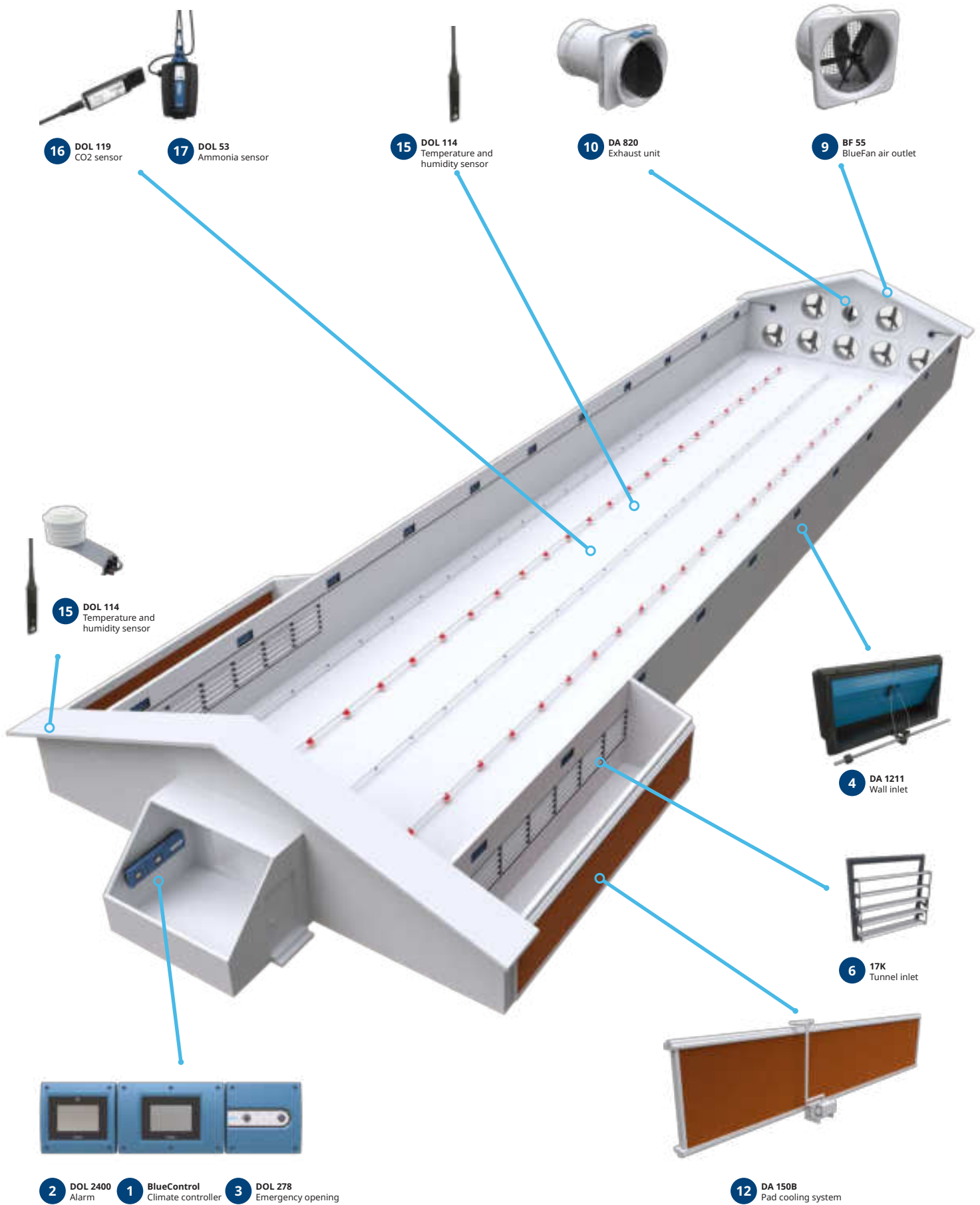
Tunnel-Plus has been developed especially for producing birds on the floor in a tropical climate. Compared with a standard Tunnel system, it significantly upgrades the birds' welfare and growing conditions in these areas.

The principle of a Tunnel-Plus system is that it uses air jet ventilation via wall inlets for small birds. For large birds and at high outside temperatures, Tunnel ventilation is used in which air velocities are achieved among the animals, ensuring a high cooling effect when required.

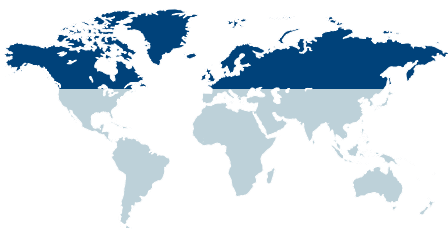
### Benefits:

- Reduce temperature differences along the length of the building in cool/cold periods
- Ensure even distribution of the birds in the building, the same good growing conditions
- Reduces the need for brooding areas





# Equal Pressure System



## Full control of air in and air out

The equal pressure system is intended for temperate regions of the world and can be adapted to most poultry houses.

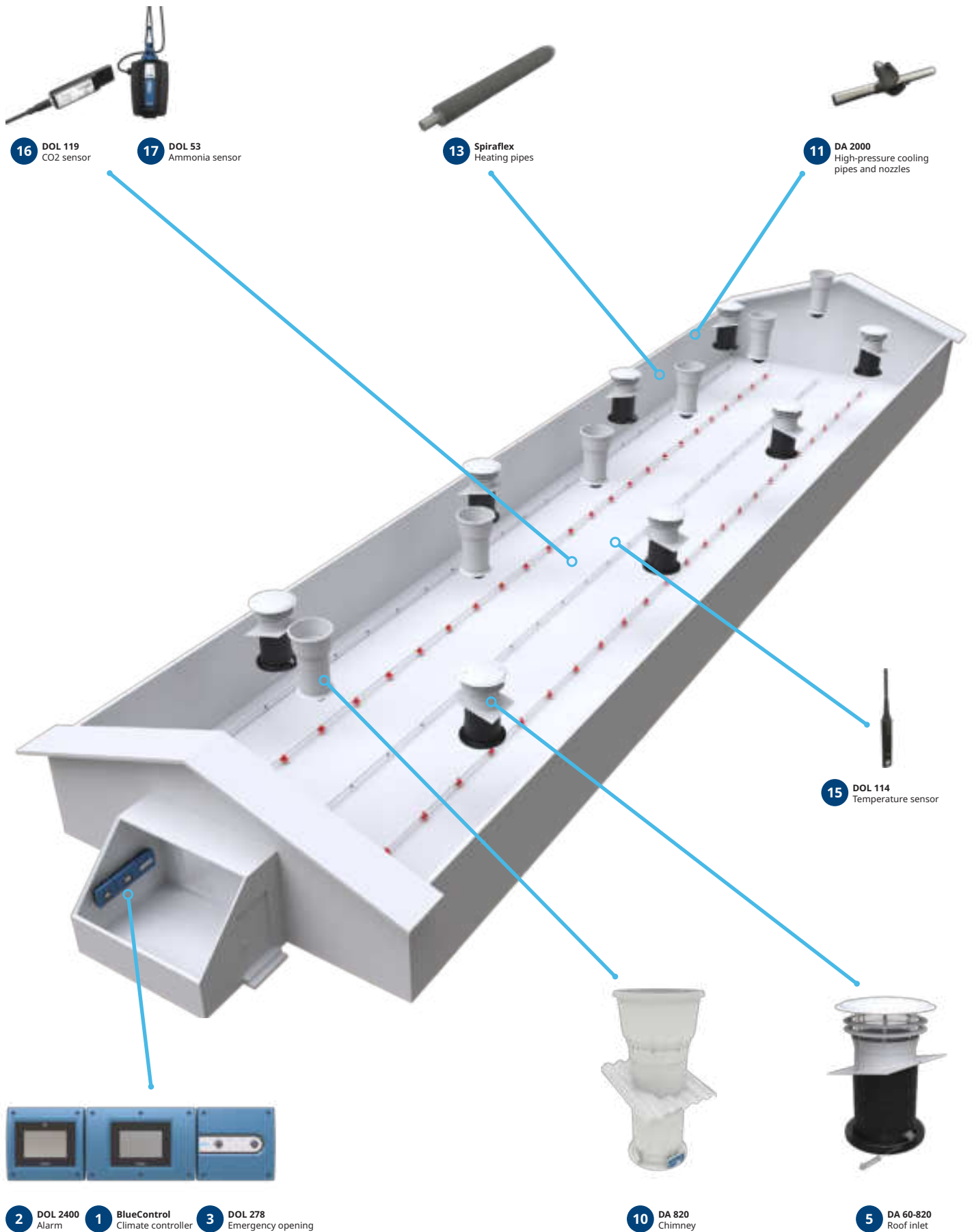
In an equal pressure system, the fresh air is supplied through roof inlets, and the outlet is conducted through chimneys – both with active fans ensuring a neutral pressure.

Especially free-range poultry houses require equal pressure ventilation.

### Benefits:

- Exact control of the ventilation capacity and thus the climate
- Uniform distribution of the birds
- Suited for monoblock houses, where you cannot use wall inlets
- Suited for non-sealed houses, for instance, old leaky houses or free-range houses
- Robust system in wintertime where recirculation helps save on heating costs





16 DOL 119 CO2 sensor

17 DOL 53 Ammonia sensor

13 Spiraflex Heating pipes

11 DA 2000 High-pressure cooling pipes and nozzles

15 DOL 114 Temperature sensor

2 DOL 2400 Alarm

1 BlueControl Climate controller

3 DOL 278 Emergency opening

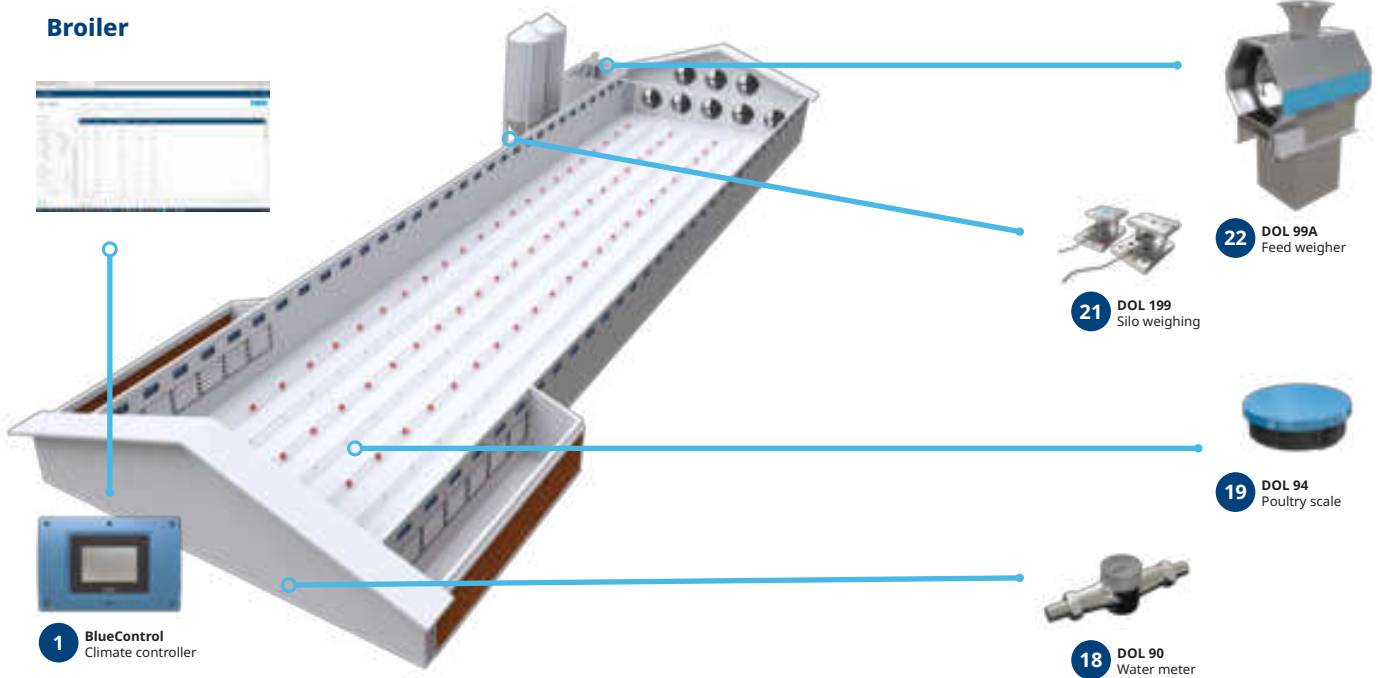
10 DA 820 Chimney

5 DA 60-820 Roof inlet

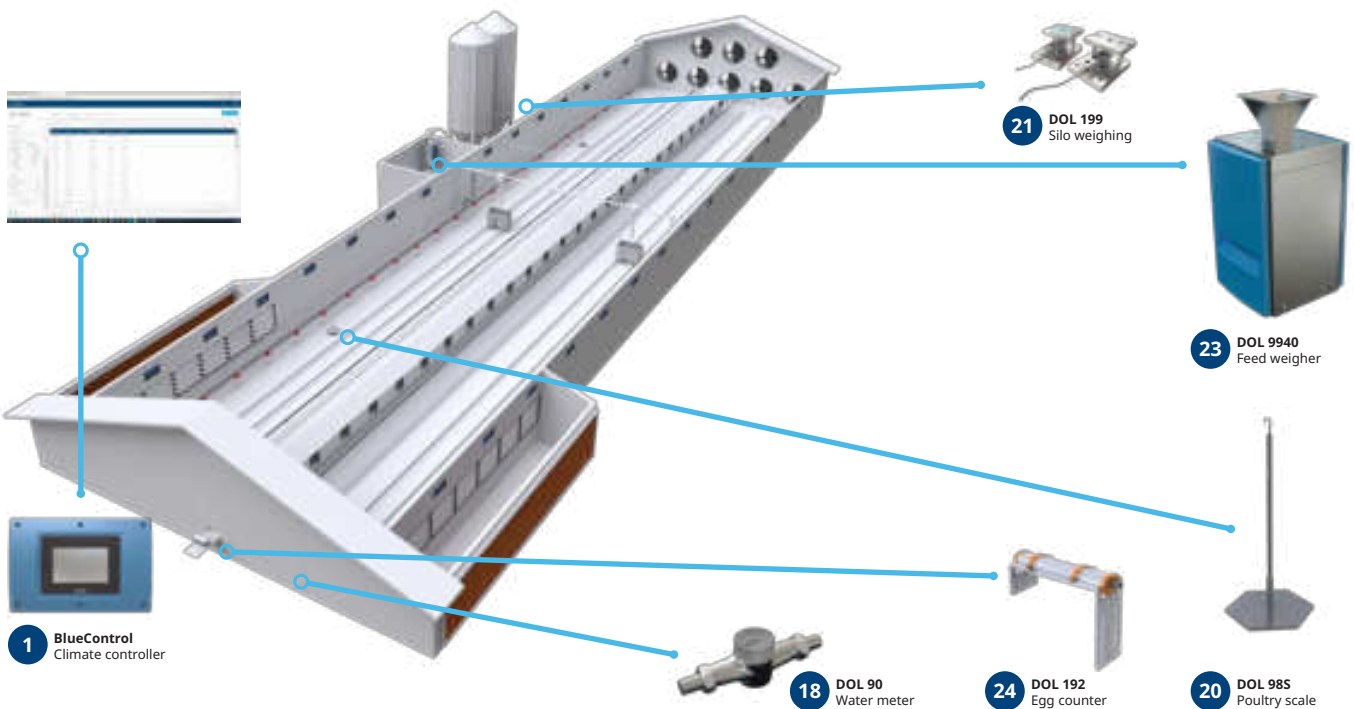
# Broiler and breeder

## Production

### Broiler



### Breeder





## Production

### Control of feed, water, weight, and light



Delivering the best results demands the ability to monitor production continuously and take corrective actions if it takes an unanticipated course. SKOV's production controllers have production modules adapted to broilers and breeders with functions that enable systematic monitoring and effective control of production.

#### Broiler

SKOV's production controller has production modules adapted to broilers with functions that enable systematic monitoring and effective control of production.

These production modules can monitor animals' daily gain, feed intake, feed conversion ratio (FCR), water and feed consumption ratio, and mortality.

Changes in water consumption can indicate an outbreak of a disease and water waste, increased temperature in the house, or poor feed. In cases of an outbreak of a disease or increased temperature in the house, the animals' water intake will increase.

It is crucial for broiler producers to know the animals' weight to monitor and control their productivity.

To control animal behavior means providing them the right amount of light in the right places at the right time.

#### Benefits:

- Continuously monitoring and controlling the production
- Advanced feed program securing optimal FCR/PEF
- Water monitoring and control – quick reaction in case of irregularities
- Light control for good animal welfare

#### Breeder

During breeding, it is important to monitor growth and uniformity and ensure the correct amount of feed. It is essential to achieve optimal growth and uniformity of the animals.

During egg production, it is crucial to monitor the egg production, manage food distribution, and monitor animal feed intake and weight. One or more electronic egg counters automatically counts the produced eggs. It is also possible to record the floor, system, and nest eggs.

The production controller ensures accurate dosing of feed for both males and females. The feed is weighed out and supplied in pan or feed chain lines with many destinations.

To control animal behavior means providing them the right amount of light in the right places at the right time.

#### Benefits:

- Continuously monitoring and controlling the production
- Advanced feed program for the complete batch
- Advanced feed program securing optimal egg production
- Water monitoring and control – quick reaction in case of irregularities

# Farm Management

## Increase your productivity



A SKOV controller controls the climate and production at house level and transfers the data to FarmOnline.

All essential production data is displayed on one screen in FarmOnline – providing a quick overview and enabling in-depth analyses. The program allows you to view and change selected key values for temperature, humidity, ventilation, cooling, and heating.

It gives you an easy overview of current and historical data, making it possible to monitor the development of individual batches and compare them to each other.

### Business perspective

Companies that own several farms in several locations can access data to get a complete overview of their farms, enabling them to develop their businesses further.

Data is transferred directly from the controller to the management system PC at headquarters. Data is in real time and not influenced by any manual processes that can cause errors and lower the data validity.

It enables management to compare essential production data across the individual farms and concentrate the efforts on farms where productivity needs improvement.

### Benefits:

- Trustworthy, validated, and filtered data from an unlimited number of farms
- A complete overview of production at all levels – farms, regions, and worldwide
- Possibility to initiate quick action in case of irregularities on any farm regardless of location
- Improved production and business development based on reliable real-time data
- Efficient implementation of management strategies in the various regions

# Farm Management

## FarmOnline Apps



### Survey

The survey module provides a comprehensive overview of climate and production data for an unlimited number of farms and houses. The overview displays real-time data without any delay.

#### Benefits:

- Many houses - compiled overview
- Use the skilled labor optimally
- Use good experiences from one farm on other farms



### Production - Broiler

Data is shown for the broilers' weight, mortality, FCR, and PEF. Feed accounts for up to 80% of the cost of producing broilers, which is why it is crucial to focus on optimum utilization.

#### Benefits:

- Ensure growth through optimum feed utilization
- Quick overview - spend time on the animals, not in the office
- Observe deviations before they have consequences

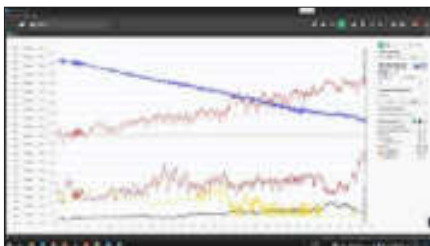


### Trend Warnings

The Trend Warnings app helps optimize the batch performance by making warnings and notifications when intake deviations happen.

#### Benefits:

- Faster reaction to nonoptimal intake deviations – performance improvement
- Adaptive reference and warnings that give an accurate overview of the batch performance
- Suggestions about improvements in case of poor production performance



### Climate

The module typically shows climate data for temperature and humidity but can also display data for CO2 and ammonia.

#### Benefits:

- Stable livestock house climate - uniformly high productivity
- Quick overview - spend time on the animals, not in the office
- Observe deviations before they have consequences

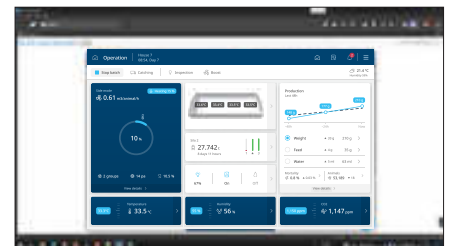


### Production - Breeder

The production module for parent stock contributes with relevant analyses based on information about feed, water, light conditions, eggs, and mortality.

#### Benefits:

- High-value animals require extra attention
- Quick overview - spend time on the animals, not in the office
- Observe deviations before they have consequences



### Remote Access

The Remote Access module provides the option to obtain a 100% identical display and operation of all climate and production controllers connected to the network.

#### Benefits:

- Same operation by you - in the house or the office
- Safety in operation - avoid errors
- Service technician or adviser guide you remotely

# System Components



1

## BlueControl climate and production controller

- Precise and efficient control of the climate and production in the poultry house
- Flexible solution of software and hardware
- Climate regulation is based on temperature and humidity, but also the CO<sub>2</sub> and NH<sub>3</sub> level
- Precise climate control – optimal growth condition for all poultry in the house
- Adaptive Control – artificial intelligence to secure higher productivity and animal welfare
- Dynamic MultiStep – low energy consumption and optimal climate
- Dedicated software packaged for broiler, layer, and breeder that fits the specific needs
- Ensuring the right amount of feed and water to utilize growth potential completely
- Always in control - continuous calculation of FCR and EPEF



2

## DOL 2300/2400 alarm

- Security for animal welfare and your investment
- Monitors temperature, humidity, empty silo, water, and fire, etc.
- Advanced temperature monitoring with outside temperature control
- Fingerprint scanner or six-digit PIN
- User-friendly touch screen with easily accessible overview menus
- DOL 2400 also monitors its power supply and battery backup



3

## DOL 278 emergency opening

- ON/OFF or temperature-controlled
- In case of power failure, the first few minutes are crucial for the animal welfare
- Security for animal welfare and your investment
- Insurance companies often offer lower insurance costs due to lower risk



4

## DA 1200/1211/1911 wall inlet

- For build-in or wall mounted
- Uniform climate all over the house
- Inlets close tightly – no draught or false air intake
- Fully insulated – no condensation or ice formation
- Operated by a pull rod – all inlets maintain the adjusted opening degree
- Maintenance-free and long durability



5

## DA 60-820 roof inlet

- For negative and equal pressure systems
- Uniform climate – also in wide houses
- Optimal for monoblock houses and questionable houses
- Not sensitive to outside wind conditions
- No draughts in the area occupied by the livestock
- Uniform distribution at 100% stepless regulation



6

## 17K tunnel inlet

- For Tunnel and Combi-Tunnel systems
- Uniquely suited for houses with less wall space clearance - layer cage production
  - Air direction control – optimum airflow
  - Available both with semi- and highly insulated flap
  - Airtight when closed
  - Can be used with emergency opening
  - Reduced building and fitting costs
  - Robust and easy to clean



7

**DA 65-600 chill unit**

- Optimum air velocity and air distribution
- High throw – fewer units to blow over long distance
- High-quality, durable materials and stands high-pressure cleaning
- Manually or power-driven elevation to facilitate the cleaning of the house
- The built-in fan has stepless control



8

**BF 50 BlueFan**

- For Tunnel or Combi-Tunnel houses
- High performance at low energy consumption
- Non-corrosive materials – no rust or need for frequent replacements
- Pressure stable – no problem in windy areas
- Airtight shutter and well-insulated – no draught or false air intake
- Available in stepless (0-100%) variants and ON/OFF variants



9

**DA 55 BlueFan**

- Suitable for larger houses using Tunnel or Combi-Tunnel
- Low power consumption
- No noise when the shutter opens
- Easy to install and clean
- Higher output - fewer fans needed
- Long durability - plastic housing and plastic wings
- Plastic and stainless steel - no rust and corrosion



10

**DA 600/820/920 exhaust unit**

- Wide range of chimney solutions for all purposes
- Aerodynamic and optimized to the LPC fan
- Maximum air output at low energy consumption
- Robust under all weather conditions
- Profiled roofing sheets – no need for sealing
- Side or ridge-mounted – easily adapted to the roof



11

**DA 2000 High-pressure cooling**

- Maintain high productivity during the hot periods
- No or less drop of productivity during the hot period
- Avoid animal heat stress and higher mortality during very hot periods
- Optimize the humidity level in the house for higher productivity and animal welfare
- Dust-binding – better air quality and working environment



12

**DA 100B/150B Pad cooling**

- Maintain high productivity in the hot periods
- Big pad surface - high cooling effect results in better productivity
- No or less drop of productivity during the hot period
- Avoid animal heat stress and higher mortality during very hot periods
- No additional humidity is added to the air – can be used in areas with high humidity levels
- A robust system, even with poor water quality
- Unique solution for hot and dry areas that eliminates the temperature fluctuations

# System Components



13

### Spiraflex

- Finned tubes that are used for water-based room heating systems
- Spiraflex provides an optimum environment as the system does not add CO<sub>2</sub> to the air
- The system optimizes the air distribution at minimum ventilation – same good climate for all animals
- Spiraflex finned tubes provide efficient and cost-effective heating of the air in the house
- Fully welded finned tubes, which ensure a high, documented heat output
- Easy to install with stainless splicing sleeves, and you do not need any special tools to do it



14

### DA 175 actuator

- For all kinds of air intake
- For accurate regulation of all kinds of air inlets
- LED indication for operation status
- 24V version for emergency opening
- Maintenance-free and long durability



15

### DOL 114 temperature and humidity sensor

- High-precision sensor measuring relative humidity and temperature
- Two-in-one sensor
- Correct humidity measurements also in houses with changing and high humidity level
- Developed for the harsh environment in livestock houses
- Leave it in the house during cleaning



16

### DOL 119 CO<sub>2</sub> sensor

- Carbon dioxide measurement
- Indicator for air quality in the livestock house
- Cost-saving – optimum ventilation- and heating level
- Collect data for legislation purposes



17

### DOL 53 ammonia sensor

- Measurement of ammonia (NH<sub>3</sub>)
- Litter management control – uniform distribution
- Too high ammonia concentration results in a higher FCR, lower gain, and decreased welfare
- Corrective action according to NH<sub>3</sub> level



18

### DOL 90 water meter

- The collected data ensures a complete overview of water consumption in the various sections or houses.
- Reliable and straightforward
- Correct water measurement



19

**DOL 94 poultry scale**

- Capable of weighing birds up to 10 kg. Data such as animal weight, weight distribution, number of weighings, and gain are available continuously on the production controller.
- Weighing data based on 24/7/365
- Trustworthy weighing data based on a large number of weighings
- Real-time data is always available for the management system
- DOL 94 is easy to handle, clean, and calibrate



20

**DOL 98S poultry scale**

- Capable of weighing birds up to 20 kg. Data such as animal weight, weight distribution, number of weighings, and gain are available continuously on the production controller.
- Weighing data based on 24/7/365
- Trustworthy weighing data based on a large number of weighings
- Real-time data is always available for the management system



21

**DOL 199 silo weighing**

- A silo load cell registers the weight of the silo content and transmits it to the DOL 199 silo weighing box which transfers the data to the production controller. You can connect up to four silos to a DOL 199 silo weighing box.
- Two-in-one sensor
- Correct humidity measurements also in houses with changing and high humidity level
- Developed for the harsh environment in livestock houses
- Leave it in the house during cleaning



22

**DOL 99B feed weigher**

- DOL 99A weighs portions of up to 20 kg and can be connected to a production controller.
- Designed for the harsh and dusty environment in a livestock house
- Weighing of very high precision
- Simple stand-alone solution



23

**DOL 9940 feed weigher**

- DOL 9940 is a feed weigher that weighs portions of 10 to 40 kg. The weigher is applicable in livestock houses to ensure accurate weighing of feed consumption.
- Designed for harsh and dusty environment
- Weighing of very high precision
- The design renders feed mixing possible
- Easy access for cleaning



25

**DOL 192 egg counter**

- The automatic egg counter is touch-free and works using infrared light. It reduces the risk of damage and contamination and ensures an unobstructed flow of eggs on the conveyor belt.
- Range of egg counters for all conveyer belt sizes
- Egg counting based on 24/7 365
- Trustworthy data based on large numbers
- Real-time data is always available for the management system

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