



Big Dutchman®



307 *pro*

The computer for optimal climate control in every pig house

307^{pro} – the innovative climate computer for your barn



The advantages at a glance

- ✓ one climate computer for all types of pig houses: finishing houses, nurseries, sow and boar houses;
- ✓ extremely easy to use with a 7-inch colour touchscreen;
- ✓ currently speaks 30 languages – including yours!
- ✓ customised home screen;
- ✓ software with simple, easy-to-understand icons;
- ✓ quick data overview, both as graphs and as lists;
- ✓ Service Access via the Internet and BigFarmNet for quick user support in case of issues (optional);
- ✓ detailed alarm log, history and analysis;
- ✓ integrated network interface;
- ✓ fast connection to the office PC via LAN Ethernet;
- ✓ use of standard IT components;
- ✓ remote access via network or app.

The new **307^{pro}** climate computer is the basis for a reliable ventilation system in your pig house. The computer is available for one or two compartments. The computer's main features include precise control, functional reliability and user-friendliness.

- ✓ **PID climate computer:**
the temperature in the house is

regulated quickly and precisely to the required level.

- ✓ **Full BigFarmNet compatibility:**
can work with all other BigFarmNet computers in the network.
- ✓ **Different user levels:**
password protected, i.e. non-authorized persons cannot change the computer settings.

- ✓ **7-inch colour touchscreen:**
graphically displays any relevant curve progression. Functions that are used on a daily basis are immediately available in the menu.
- ✓ **Modular hardware:**
easy to extend when new functions have to be implemented.

BigFarmNet
technology

One solution for everything!



The best prerequisite for efficient production is a single all-in-one software and hardware solution for all tasks on your farm – for sow houses and/or finishing houses alike, for a single barn or entire farm complexes, whether you operate at one or many different locations.

At the beginning of the 21st century, digitalisation is the main innovation driver – and has long since reached agriculture as well.

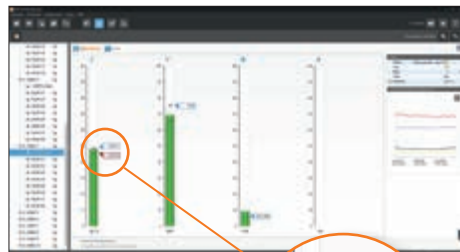
Big Dutchman identified this trend early on. We have made interconnection one of the most important topics in our R & D.

For us, digital interconnection means **BigFarmNet!** BigFarmNet is a hardware and software solution for the entire pig farm: one solution for everything! The software itself, the so-called BigFarmNet Manager, is very easy to use.

All BigFarmNet applications have the same user interface, including climate control, production management and data analysis. This means that you only need one single software to control the house climate, to use your computer-controlled feeding system and to analyse production results.

All computers used for these tasks are connected with each other by means of a network. All data is therefore synchronised and available from any computer, no matter whether the computer is located

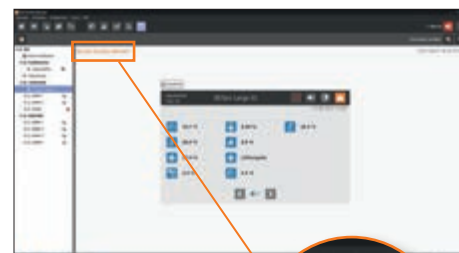
inside the farm office or in the barn. Settings regarding ventilation, feed, water and lighting can be configured and transferred automatically to other barns in the same production mode. This creates the best possible conditions to utilise the genetic potential of the animals fully, to save costs and to run a steady and profitable operation.



Current climate situation



Overview climate



Service Access

Sensors: the technical basis for data collection

Using sensors for modern livestock production is a state-of-the-art method today. Temperature, humidity, CO₂ and NH₃ sensors effectively measure and control changes in the house air. These sensors are therefore the basis for any computer-controlled climate system. Big Dutchman offers a wide variety of sensors.

DOL 114 is a sensor that measures the relative air humidity inside the barn. Due to its two analogue 0-10 V outputs, the sensor can also measure the temperature (optional). A two-colour LED indicates operating status and error diagnosis.

Our DOL 19 carbon dioxide sensor is equipped with a high-quality infrared measuring cell which is able to detect CO₂ in a range from 0 to 10,000 ppm and which can therefore control minimum ventilation rates based on the concentration of CO₂ inside the compartment. This saves heating costs and makes for an improved house climate.

DOL 18 is a negative-pressure sensor that actively measures the pressure in the barn, emitting a 0-10 V signal. The climate computer usually supplies the sensor with a voltage of 15 to 30 V DC.

An entirely new product available from Big Dutchman is the DOL 53 sensor for permanent measuring and monitoring of the ammonia concentration in the house air. This robust sensor delivers very precise measuring results and is well-suited for use in livestock facilities. Its measuring range is 0 to 100 ppm NH₃.



DOL 114: humidity sensor



DOL 19: CO₂ sensor



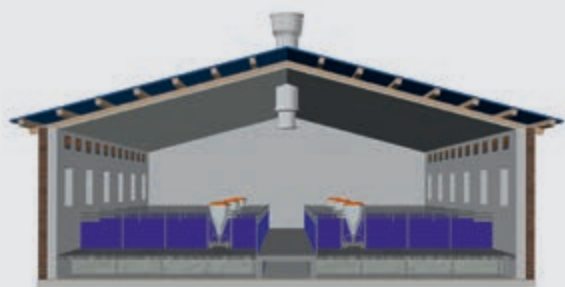
DOL 18: negative-pressure sensor



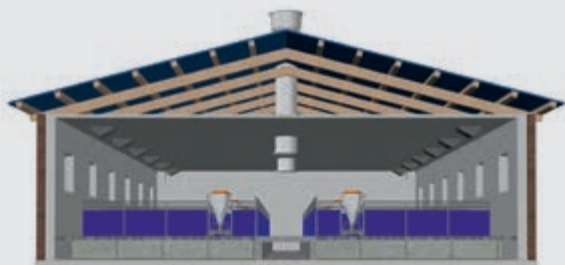
DOL 53: NH₃ sensor

Ideal climate in the pig house – with the ideal ventilation system

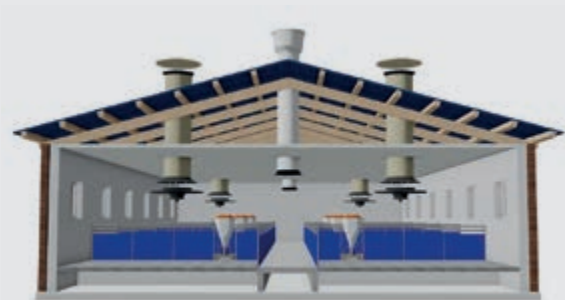
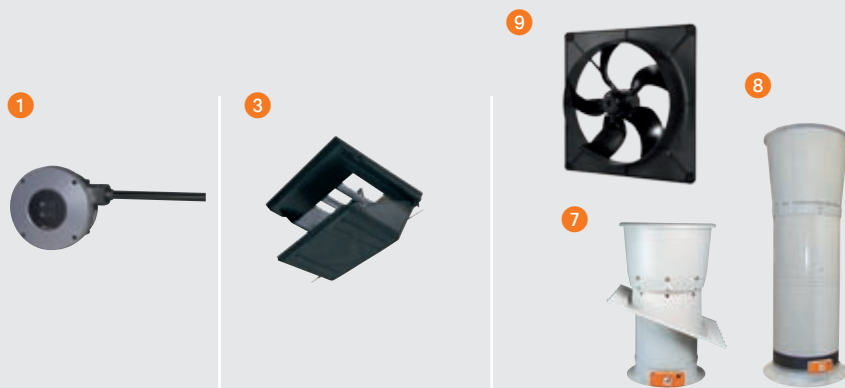
Components for high-velocity ventilation:



High-velocity ventilation with wall inlets and exhaust air chimneys



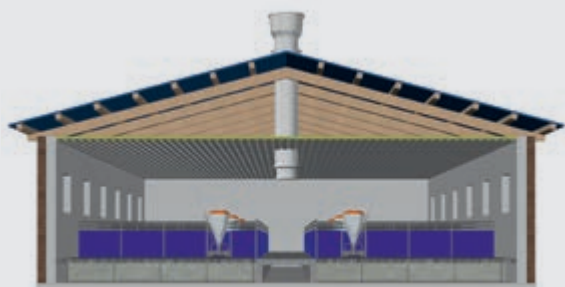
High-velocity ventilation with ceiling inlets and exhaust air chimneys or wall fans



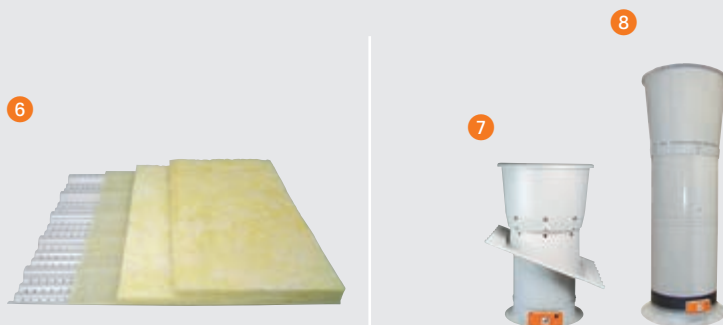
High-velocity ventilation with fresh air chimneys and exhaust air chimneys or wall fans



Components for diffuse fresh air supply:



Diffuse fresh air supply by means of DiffAir ceiling and exhaust air chimneys



solution for every customer

Fresh air and exhaust air

A stable negative-pressure ventilation requires the correct fresh air and exhaust air elements. Big Dutchman can offer you suitable components for any type of ventilation system.

1 CL 175 actuator

- ✓ regulates the flap position of wall and ceiling inlets as well as the FAC fresh air chimney
- ✓ compact design, robust and maintenance-free
- ✓ relay-controlled and available for 24 V DC as well as 230 V AC
- ✓ electric switch for manual operation included

2 CL 1200, CL 1211 F and CL 1911 F wall inlets

- ✓ optimal fresh air supply because air can enter the house from one side or from both sides
- ✓ available as flange inlet or for incorporation into the wall
- ✓ seals the house air-tight
- ✓ can be opened either all at once or individually

3 CL 1540 ceiling inlet

- ✓ optimal fresh air supply as the air is always distributed along the ceiling, preventing draughts
- ✓ the inlet flap opens through a downward pull
- ✓ can be opened either all at once or individually

4 ZED 5000 ceiling inlet with extension

- ✓ characterised by high air rates, making the inlet ideal for additional ventilation in the summer in combination with a DiffAir perforated ceiling
- ✓ can also be used as aisle ventilation above the feed aisle or as a fresh air opening for central aisles
- ✓ can be opened all at once

5 FAC fresh air chimney

- ✓ fresh air is distributed into the house from the roof
- ✓ rugged tube, GRP-coated on both the inside and the outside, with 30 mm thick insulation made of polyurethane
- ✓ a recirculation unit ensures a uniform, draught-free distribution of fresh air, even in cases of low outside temperatures
- ✓ the fresh air distributor creates a stable air flow even with minimum ventilation rates
- ✓ can be controlled centrally or locally

6 DiffAir perforated ceiling

- ✓ the fresh air is supplied evenly along the entire ceiling and thus distributed uniformly
- ✓ also acts as economic ceiling insulation
- ✓ consists of trapezoidal plates (GRP or aluminium) and a two-ply layer of special mineral wool

7 CL 600 and CL 920 exhaust air chimneys

- ✓ large air capacity
- ✓ CL 600 is made of polypropylene and has a smooth, dirt-repellent surface
- ✓ the self-supporting roof plate construction renders additional suspension unnecessary
- ✓ the corresponding chimney fan is easy to install and available in different versions
- ✓ available in two diameters (650/920 mm)

8 BD exhaust air chimney VC

- ✓ made of a 30 mm thick polyurethane tube
- ✓ stable coating on the inside and outside with smooth, glass-fibre reinforced polyester
- ✓ easy-to-install chimney fan
- ✓ the intake nozzle and diffuser permit an improved intake and exhaust flow of the air
- ✓ available in different sizes depending on the required air rates (diameters from 370 to 1270 mm)

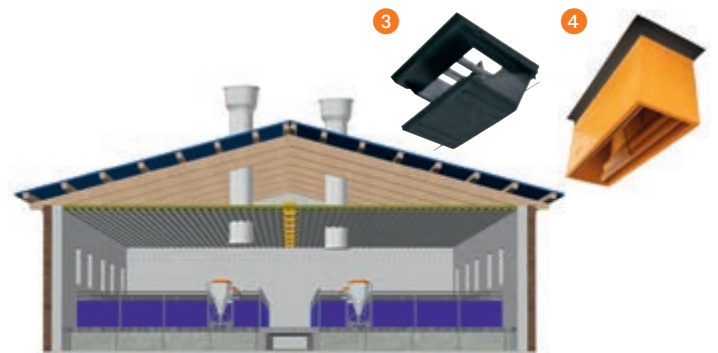
9 Axial fan

- ✓ for incorporation into the wall
- ✓ large air capacity with low energy consumption
- ✓ the blades are made of profiled aluminium die-cast for a long service life
- ✓ easy to control, low noise level
- ✓ the frame has an aerodynamic shape and is made of stable plastic or corrosion-resistant metal
- ✓ available with diameters from 350 to 920 mm

CombiDiffuse ventilation

CombiDiffuse is a combination of two ventilation systems. In case of low outside temperatures, fresh air is supplied by means of the DiffAir ceiling.

If outside temperatures are high, the climate computer additionally opens the ZED 5000 ceiling inlets in order to create a cooling effect based on the higher air speed.



Heating

Ideal house temperatures have a substantial influence on the health and performance of your livestock. The following heating systems are available:



1. Twin or Delta pipe

- ✓ hot-water heating
- ✓ are particularly well suited for diffuse fresh air supply (DiffAir, perforated air channel, aisle ventilation below the floor)
- ✓ are made of aluminium and therefore have a very good thermal conductivity (180-200 watts per metre) at a low weight
- ✓ easy to install



2. Fin heater

- ✓ hot-water heating
- ✓ high heat output thanks to large surface area: up to 650 watts per metre
- ✓ made of aluminium or galvanized steel
- ✓ ideal for use in combination with wall or ceiling inlets
- ✓ easy to install



3. JetMaster, RGA or gas-powered fan heater

- ✓ with or without flue gas exhaust ("RGA")
- ✓ for operation with natural gas or propane
- ✓ temperature-sensitive control
- ✓ flame guard
- ✓ built-in fan with large throwing range for a good distribution of the warm air
- ✓ the heat generated is 100 % beneficial to the animals, no heat loss
- ✓ JetMaster does not require a chimney connection

Cooling

Keeping the temperature at a comfortable level even on hot summer days is as much part of climate control in modern pig management as heating is in the winter time. There are several different cooling systems available.



1. CombiCool

- ✓ high-pressure fogging system specifically developed for compartmentalised houses
- ✓ efficient cooling on hot summer days to maintain comfort temperatures
- ✓ can also be used to humidify the house air to maintain optimal humidity
- ✓ fewer dust problems
- ✓ special nozzles made of stainless steel allow for very low air flow rates but very high passage speeds, producing a very fine aerosol fog that is distributed evenly all over the compartment



2. CoolBox

- ✓ decentralized cooling system with a high cooling efficiency
- ✓ high-quality plastic pads are resistant to poor quality water
- ✓ available in different sizes and with different air capacities
- ✓ CoolBox is delivered ready to install, reducing the time required for assembly



3. RainMaker

- ✓ efficient cooling system based on evaporation
- ✓ is mainly used in climatic regions with hot and dry summers
- ✓ can also be installed in the roof truss to cool down the air if a DiffAir ceiling is used
- ✓ uses special plastic pads with a long service life that are easy to clean with a high-pressure cleaner



Temperature-controlled emergency opening system

Special attention must be paid to the operational reliability of the ventilation system. For this reason, a fail-safe emergency opening system should be installed.

The temperature-controlled emergency opening system 378 T helps to ensure survival of the livestock in case of power failures or technical breakdowns. The system comprises a 24 V DC power supply unit with built-in maintenance-free battery and charger and a separate temperature probe.

The temperature at which the emergency opening function is to be activated can be set manually with the 378 T. In case of an emergency, the air inlets and outlets are controlled based on the temperature. The emergency function itself is part of the 307*pro*. This means that the climate computer monitors the 378 T and will trigger an alarm if, for instance, the temperature limit for the emergency opening function is set too high.



Central extraction

With this type of exhaust air removal, the exhaust air chimneys are either all located at one gable-end or placed centrally on the roof.

The concept of central extraction is also used if an exhaust air treatment system is installed.

Important functions of 307*pro*

- ✓ control of up to eight MultiStep® groups for minimum power consumption;
- ✓ DynamicAir optimises the air exchange in the barn by precisely recording the volume flow in the exhaust air chimney;
- ✓ display of the exhaust air volume in m³/h;
- ✓ cycle ventilation for minimum ventilation rates;
- ✓ CombiDiffuse ventilation combines two different ventilation systems for high/low outside temperatures;
- ✓ control of different heating systems, on/off or continuously for hot-water heating systems;
- ✓ humidity control with/without heat;
- ✓ control of cooling and humidification;
- ✓ extended control based on pre-set curves (temperature, heat, humidity, floor heating, minimum and maximum ventilation rates);
- ✓ registration of consumption rates of up to eight water meters;
- ✓ water alarm in case of over- or under-supply as compared to the previous day;
- ✓ sequential control of two stepless fan groups;
- ✓ control of up to four timers for light/feeding;
- ✓ light control;
- ✓ trend curves;
- ✓ pause function (soaking, washing, drying);
- ✓ frost protection for empty barns;
- ✓ ice protection prevents freezing of the fresh air inlets;
- ✓ active control of minimum ventilation rates by means of a CO₂ sensor;
- ✓ active pressure control;
- ✓ log file for alarm and operation;
- ✓ access code;
- ✓ connection to the BigFarmNet Manager software.

307pro is available in different extension stages

Type	307pro-L1	307pro-L2	307pro-XL
Maximum number of analogue inputs	11	19	27
• Outside temperature sensors, max.	1	2x1	1
• House temperature sensors, max.	8	2x8	8
• Humidity sensors, max.	2	2x2	2
• Negative-pressure sensor	1	2x1	1
• Additional sensors (NH ₃ , CO ₂ , O ₂ , air speed), max.	4	2x4	4
• Sensor for CO ₂ control	1	2x1	1
• 0-10 V signal for speed controller	2	2x2	2
• 0-10 V signal for actuator at chimney	2	2x2	2
• Feedback potentiometer actuator for exhaust air	2	2x2	2
• Feedback potentiometer actuator for fresh air	6	2x6	6
• Water meter	4	2x4	8
• Light dimmer, analogue	1	2x1	1
• Heating, analogue	2	2x2	2
• Floor heating	1	2x1	1
• Feedback floor heating	1	2x1	1
• Signal CombiDiffuse	1	2x1	1
• DynamicAir	1	2x1	1
Maximum number of digital outputs	12	22	32
• Contacts for heating	2	2x2	2
• Contacts for floor heating	1	2x1	1
• Contacts for cooling	1	2x1	1
• Contacts for soaking	1	2x1	1
• Contacts for humidification	1	2x1	1
• MultiStep groups	5	2x5	8
• Light on/off	1	2x1	1
• Timers	4	2x4	4
• Alarm	1	2x1	1
• Signal CombiDiffuse	1	2x1	1

The basic version of 307pro is equipped with the inputs and outputs listed in the table. For this reason, not all listed functions are available at the same time.



Big Dutchman

Germany:
Big Dutchman International GmbH
 Postfach 1163 · 49360 Vechta
 Tel. +49(0)4447 801-0 · Fax -237
 big@bigdutchman.de
 www.bigdutchman.de

U.S.: Big Dutchman, Inc.

Tel. +1 616 392 5981 · bigd@bigdutchmanusa.com
 www.bigdutchmanusa.com

Brazil: Big Dutchman (Brasil) Ltda.

Tel. +55 16 2108 5310 · bdb@bigdutchman.com.br
 www.bigdutchman.com.br

Russia: 000 "Big Dutchman"

Tel. +7 495 2295 161 · big@bigdutchman.ru · www.bigdutchman.ru

Asia/Pacific: BD Agriculture (Malaysia) Sdn. Bhd.

Tel. +603 3348 3555 · bdasia@bigdutchman.com · www.bigdutchman.com

China: Big Dutchman (Tianjin) Livestock Equipment Co., Ltd.

Tel. +86 10 6476 1888 · bdcnsales@bigdutchman.com
 www.bigdutchman.cn