

Low Pressure / Star Diffuse System Description

Description

The low pressure system is used in pig houses with exhaust through the roof or the wall, and air inlet through the roof or from the loft.

The system operates independently of the pressure from the wind, and the unique design of the roof cowl is secured against entering of wild birds.

Components

- Exhaust Ø600 or Ø800 to install in the roof or in the wall.
- The capacity of the fan (in the exhaust) depends on the number of animals.
- Air inlet - star diffuser Ø600 or Ø800 without fan in the inlet.
- Controller - PigCenter/PigMaster that is capable of controlling all kinds of pig houses.
- To control the dampers in the exhaust and the star diffusers in the inlet, a Linak actuator or a nepronic 2060/4060 is to be used.
- The star diffusers and the dampers are connected with stainless steel wire and piano string, which are very resistant to influence by heat and coldness.

Function

The system will always operate with a low pressure depending on the type and width of the house, typically up to 20 Pa.

The adhesive effect of the system is utilized at low capacity.

At high capacity it is inappropriate to lead the air too fast towards the floor. The system is therefore equipped with a distribution plate leading the air horizontally into the room when the diffuser is fully open, ensuring that the air is mixed before reaching the pigs.

The system is controlled by PigCenter/PigMaster which efficiently adjust temperature, air humidity and pressure.

All fans are single-phase and operate infinitely variable.

The dampers in the exhaust and the star diffusers are each controlled by a damper motor to achieve a constant control of the low pressure inside the house.

Air inlet



Exhaust



Star diffuser with air distributor



Fan



PigCenter/PigMaster



Linak



Advantages

- Exhaust up to 800 mm with high capacity.
- Roof exhaust and air inlet cast in black or grey polypropylene. Air inlet with a diameter of 600 or 800 mm.
- Materials, which are easy to clean, stands up to high pressure cleaning.
- Separate controlling of the dampers in the exhaust and the diffusers in the inlets.
- Emergency opening of all types.
- Operates independently of the wind pressure.
- Distribution plate directs the air out horizontally at full capacity.

Functional Description

The system is based on the low pressure of the house.

A typical low pressure would be 20 Pa of course calculated according to the size of the building and the number of pigs.

The inlet is installed close to the ceiling, presenting more advantages:

- The adhesiveness of the air is fully used and allowing a 41% increase in air travel before it drops from the ceiling.
- Less material consumption
- Easier to clean.

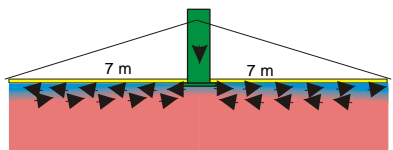
In cold conditions, due to the large diameter and upward curve of the bellmouth the air will be directed a long distance along the ceiling before starting to drop whilst being warmed by the heat inside the house.

During normal and warm external conditions the star diffuser is automatically adjusted to direct the air in an increasing downward direction so that even in extreme external conditions good ventilation is achieved amongst the stock.

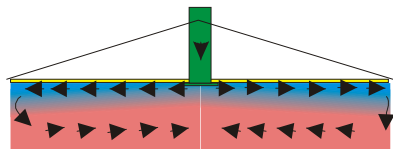
The system is also pressure controlled so that correct low pressures and air speeds are achieved at all times.

It is important that the house is airtight in order to build up a constant low pressure.

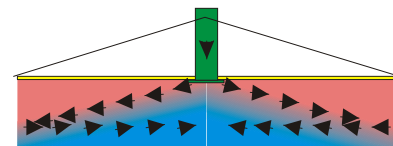
Schematic overview of the adhesiveness of the air.



Effect of the adhesiveness of air at minimum opening - the air adheres to the ceiling.



Effect of the adhesiveness of air at 1/3 opening - the air is starting to drop off the ceiling.



Air distribution at full opening the air is directed down towards the floor

Placing:

