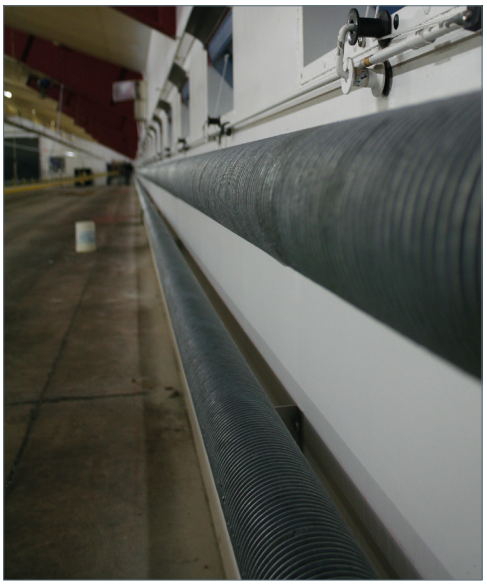

Heating for poultry production

SKOV

Climate for Growth

Optimum livestock house climate with an efficient heating system

A good livestock house climate is important for the animals' well-being, health and productivity. Heating is part of the total climate solution. Like ventilation and cooling, heating is crucial for creating the best possible climate in buildings with a high level of productivity.
SKOV provides ventilation solutions in which heating is an integrated part of the overall solution.

A good start with heating in the livestock house

To provide birds and litter with the best start, it is important that the livestock house is heated for a period of time before the birds are stocked. This is essential in climate areas where it is cool/cold. The air temperature can be raised within a few hours, however, it may take a long time for the walls and floor to be heated. Small broilers are completely dependent on the ambient air temperature and a solid base for good production results is formed during the first days of life.

Therefore, it is a good investment to ensure optimum climatic conditions when the broilers are stocked.

Avoid disease with an efficient heating solution

Even after this first critical period, the livestock house climate is of great importance for the animals' well-being and productivity. Particularly temperature and relative humidity have an important part to play in connection with poultry feed consumption, growth, stress, infection risk, etc. The ventilation of the livestock house does of course play an important role here, but it will, in periods, be necessary to add heat to the livestock house to control the climate entirely, including temperature, relative humidity and CO_2.

SKOV provides an array of solutions for heating of livestock houses, and they can be adapted to the needs of the individual poultry producer.

Efficient heating with direct heating

Direct heating means that heat is supplied through direct, open combustion of gas in the building itself.

This heating system is a quickly responding and powerful heat source, effective for heating and drying livestock houses after cleaning.

SKOV's fully automatic blow heater has a BCU that ensures correct combustion of the gas and also comes with automatic ignition. If there were to be any operating issues during combustion, the blow heater triggers an alarm which safeguards against uncombusted gas inside the building.

The blow heater is manufactured in stainless steel and requires minimal maintenance. It has been developed for aggressive environments and stands high-pressure cleaning.

Spiraflex
- water-based heating technology

The Spiraflex heating system from SKOV is based on the supply and circulation of hot water. SKOV heating components are of a very high quality and they are well suited for a harsh livestock house environment. Spiraflex finned tubes provide an efficient and economical heating of the air in the house. The heat emission level of the Spiraflex tube is per metre much higher than the heat emission of a smooth tube.
The tubes are mounted below the air inlets. The finned tubes emit heat to the surrounding air, primarily through convection. The air gets lighter, rises and carries the cold air from the inlets further into the house, ensuring circulation of the air. The positioning helps provide correct ventilation with optimum mixing of cold air from the outside and heated housing air so that the broilers are not exposed to cold air downdraughts.

Heating - a prerequisite for a good litter

As a poultry producer it is crucial that the litter in the livestock house gets off to a good start, as this is important for the animals' well-being. To provide the litter with these conditions it is important that the livestock house is entirely dry and preheated, before the litter is spread out. For the same reason, it is a good idea not to let the heat out of the house between the batches.
Floor heating is well suited for heating of the house prior to broilers being stocked, but floor heating is not recommended as the only heat source in the livestock house. It takes a relatively long time to adjust the temperature in the house either up or down by means of floor heating and it can be difficult to reach the set point temperature in the livestock house shortly afterwards. With Spiraflex finned tubes, it is possible to raise the temperature rather quickly in order to improve the distribution of the birds throughout the house.

As an alternative to the SKOV Spiraflex finned tubes, there are also epoxy-painted finned tubes in aluminium. The properties of aluminium finned tubes are just as good as those of the standard Spiraflex finned tubes. In addition to this they are lighter and can therefore be better for usage in poultry houses constructed with panels.

SKOV's efficient and quickly responding heating system ensures an optimum climate in the livestock house.

Spiraflex finned tubes

- Two standard dimensions (1" and 1½") in lengths of: 1, 3 and 6 metres
- Fully-welded finned tube ensuring a high, documented heat output
- Manufactured in steel of boiler pipe quality (DIN 17175)
- The finned tube is hot-dip galvanised
- Delivered with threading for standard plumbing fittings
- Mounting with stainless brackets

The Spiraflex finned tubes are mounted below the wall inlets. The finned tubes emit heat which carries the fresh air coming in through the inlets into the livestock house.

Save more than 50% on your heating costs

In modern farming there is a big incentive to reduce energy costs, including the costs for heating the livestock house. Because of this SKOV has launched a heat recovery unit that is capable of cutting the total heat consumption in the production of broilers by more than half.

How does it work?

The heat recovery unit runs when the ventilation requirement in the house is low and is thus intended for minimum ventilation for a number of days in the beginning of a batch. When more ventilation is needed, the ordinary ventilation system will gradually take over.
The heat recovery unit uses the heat naturally present in the livestock house exhaust air and heats the fresh air, which is then blown back into the house. The heat recovery unit has two fans - one draws humid warm air out of the livestock house, the other one blows fresh preheated air into the building (see fig. 1).

SKOV house computer controls

The heat recovery unit is controlled as a fully integrated part of the ventilation system, run by the house computer which provides different functions and indicators that ensure an optimal usage of the heat recovery unit.
Among other things, the house computer comes with a built-in anti-ice function, which impedes ice formation in the unit. The heat recovery unit can also be deactivated at a set, outside temperature and show an array of key figures, including performance, outside temperature for activation and deactivation, the efficiency of heating the inlet air, as well as the amount of energy that is recovered.

A noticeable reduction of energy consumption

The Danish energy company Energi-Nord has in a test report documented that a broiler production of 40 000 animals can reduce heating expenses by 62% when using a SKOV heat recovery unit. In addition to this, the calculations also show that excess heat for periods of time

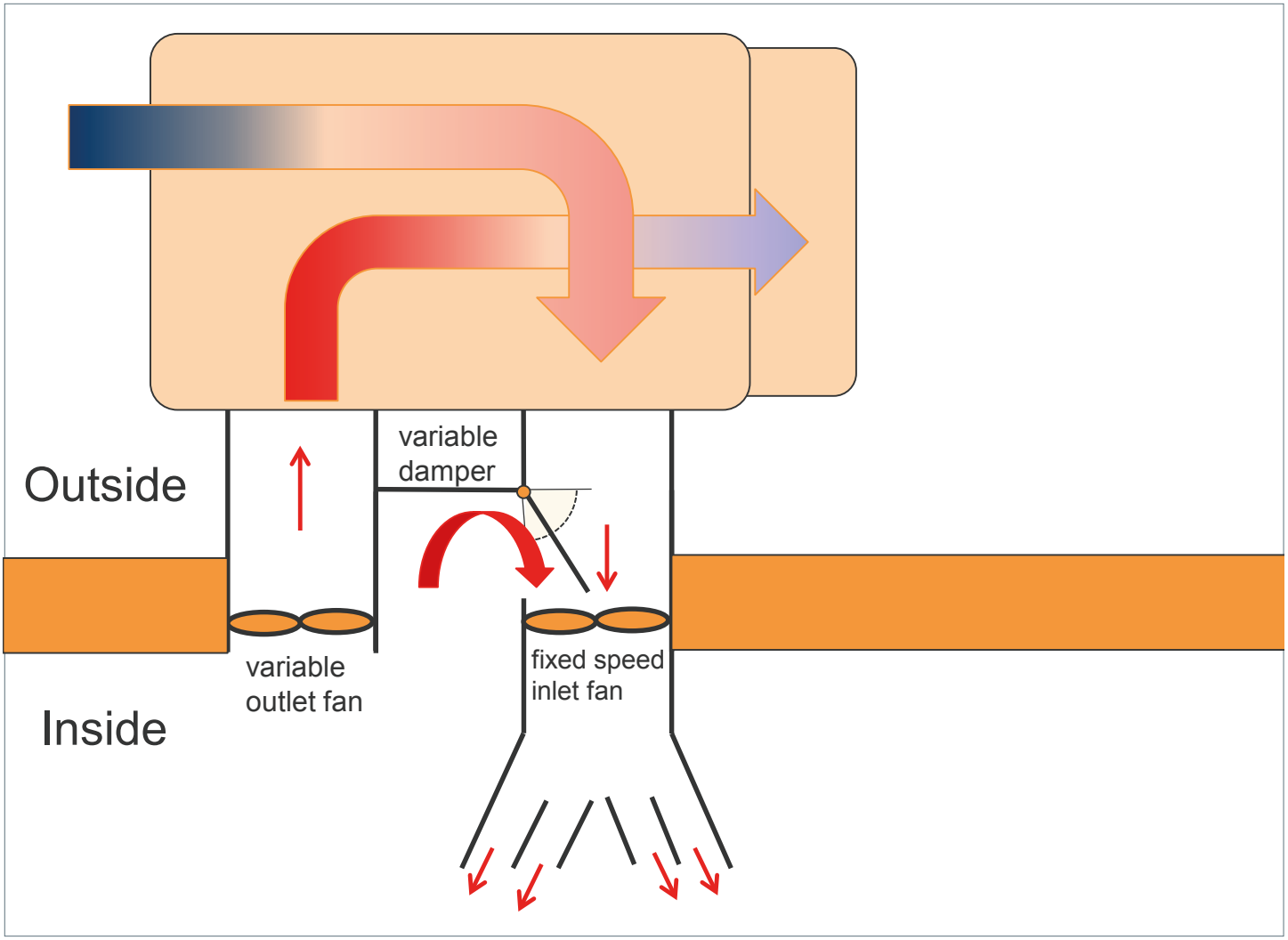

Fig. 1 The heat recovery unit draws hot air out of the livestock house, which is used for heating the cold, fresh air that enters the building from the outside. Subsequently, the heated air re-enters the livestock house.

is produced, resulting in an increased ventilation in the livestock house.
Not only does the heat recovery unit reduce energy consumption, but humidity and CO_2- concentration in the house will also be lower. Lower air humidity will mean drier litter and better air quality, which leads to less burned feet and an improved animal health.

Installation and maintenance

The heat recovery unit can be used for all kinds of buildings and the capacity of each heat recovery system equals the production of 10 000 broilers. In an average broiler house there is therefore a need for 3-5 heat recovery units. The heat recovery unit comes with telescopic legs, which makes it possible to adjust it to the individual building.
The SKOV heat recovery unit is quick and easy to clean thoroughly.

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