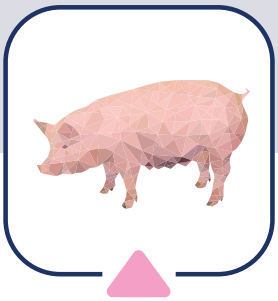
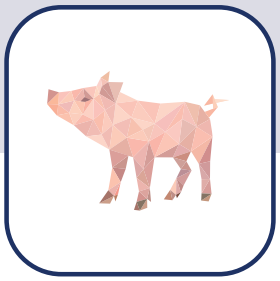
NOOYEN
PIG FLOORING

COOL SOW SYSTEM

Factsheet

- Improves the comfort of sows
- Additional yield/farrowing pen/year
- High return on investment





INNOVATORS BY TRADITION

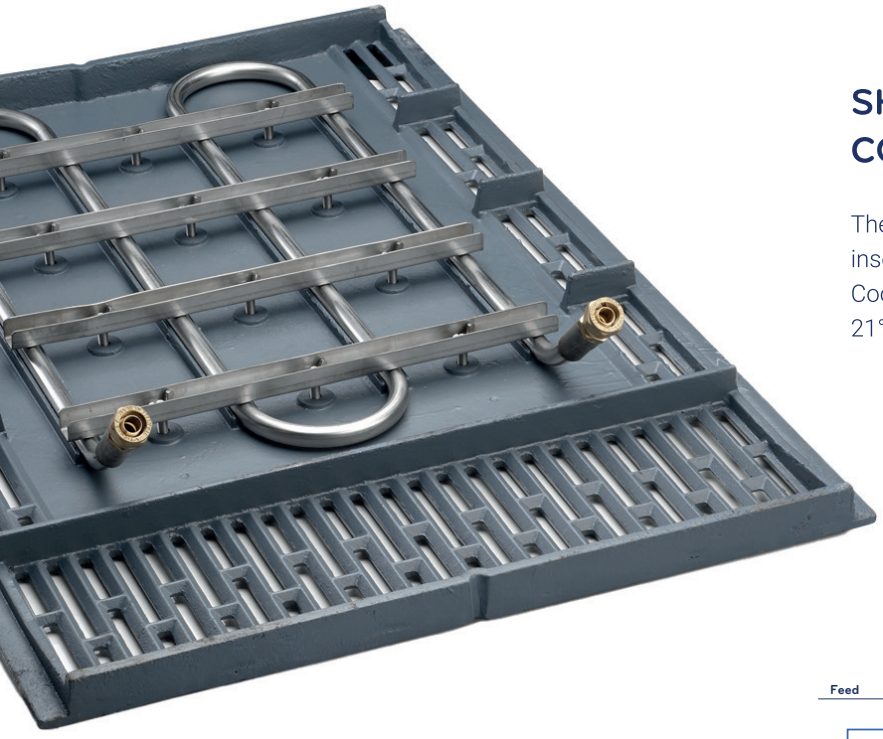
FLOOR COOLING FOR LACTATING SOWS

The optimum temperature for sows in the farrowing house is 16-18°C and for piglets, that starts at 30°C. In the farrowing pen, the temperature is usually aligned to the piglets and is therefore much too warm for the sows.

Nooyen has developed the Cool Sow System to tackle this problem: floor cooling under the shoulder and neck of lactating sows. The positive effects and results of this cooling system were proven during a two-year study by Wageningen University and Research Centre in the Netherlands.

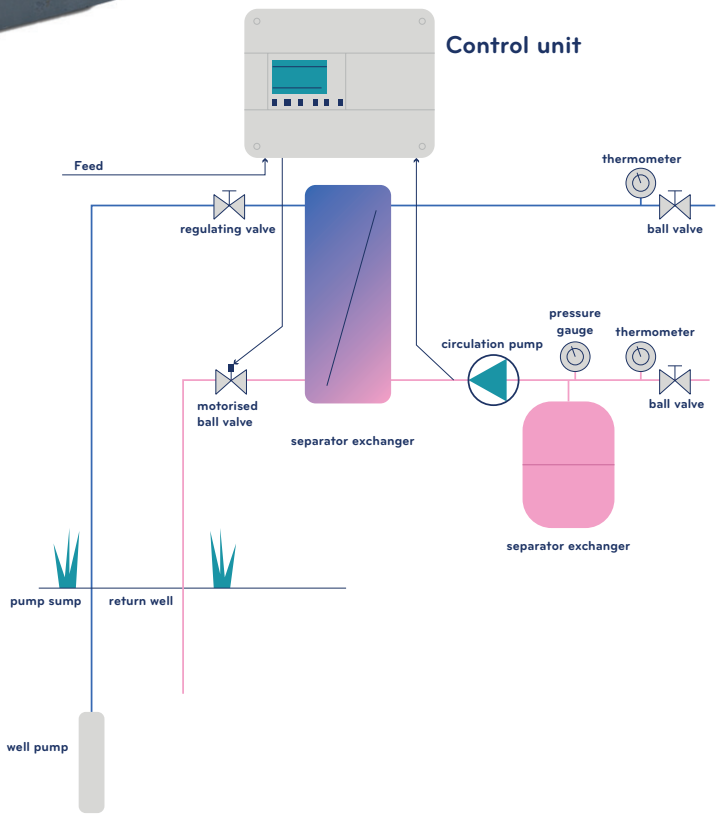
By reducing the temperature under the shoulder and neck, the sow will eat more, her condition will improve and she will have more energy, resulting in increased milk production. Importantly, she will be in a better condition when she leaves the farrowing pen. Her condition improves ovulation, resulting in stronger eggs, leading to an extra piglet in the next litter.

For the Cool Sow System, we recommend installing a heat exchanger with a primary and secondary circuit and a cooling capacity of 120 W per sow.



SHOULDER PLATE WITH COOLING SYSTEM

The Nooyen Cool Sow System consists of a cast iron sow insert with a shoulder plate fitted with a cooling system. Cooling water flows through at a temperature of approx. 21°C. The system is operated by a control unit.



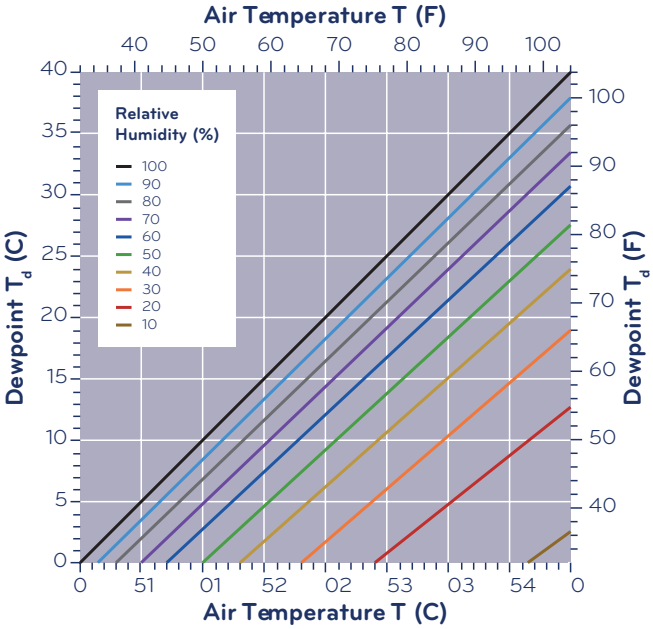
PASSIVE COOLING

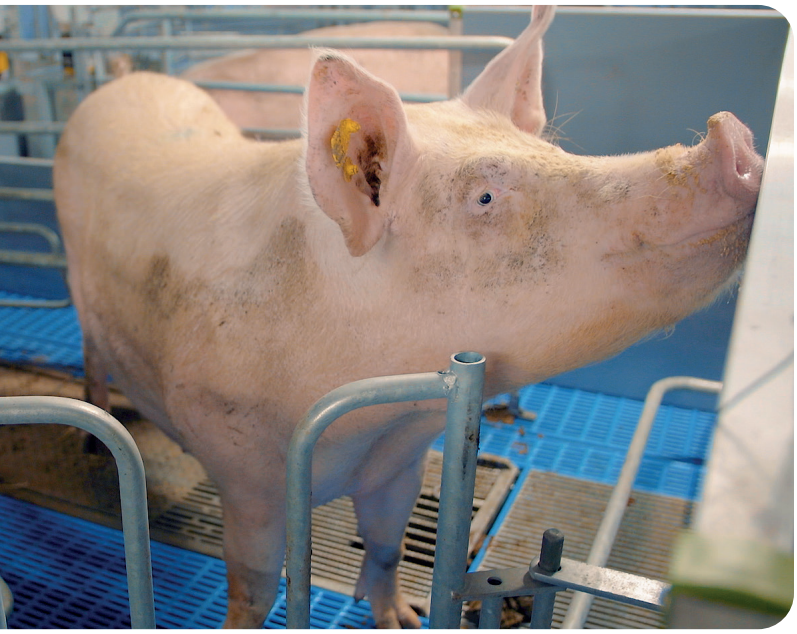
The system water is cooled with spring water; the excess heat is released into the spring water via a heat exchanger.

PREVENTIONS OF CONDENSATION

The ideal temperature of the cooling water is 21°C. In an environment with a high temperature and high air humidity, the dewpoint temperature must be determined.
This prevents the floor from getting wet as a result of water vapour condensing on the relatively cold floor.

This graph allows the dewpoint temperature to be determined at a specific air humidity.



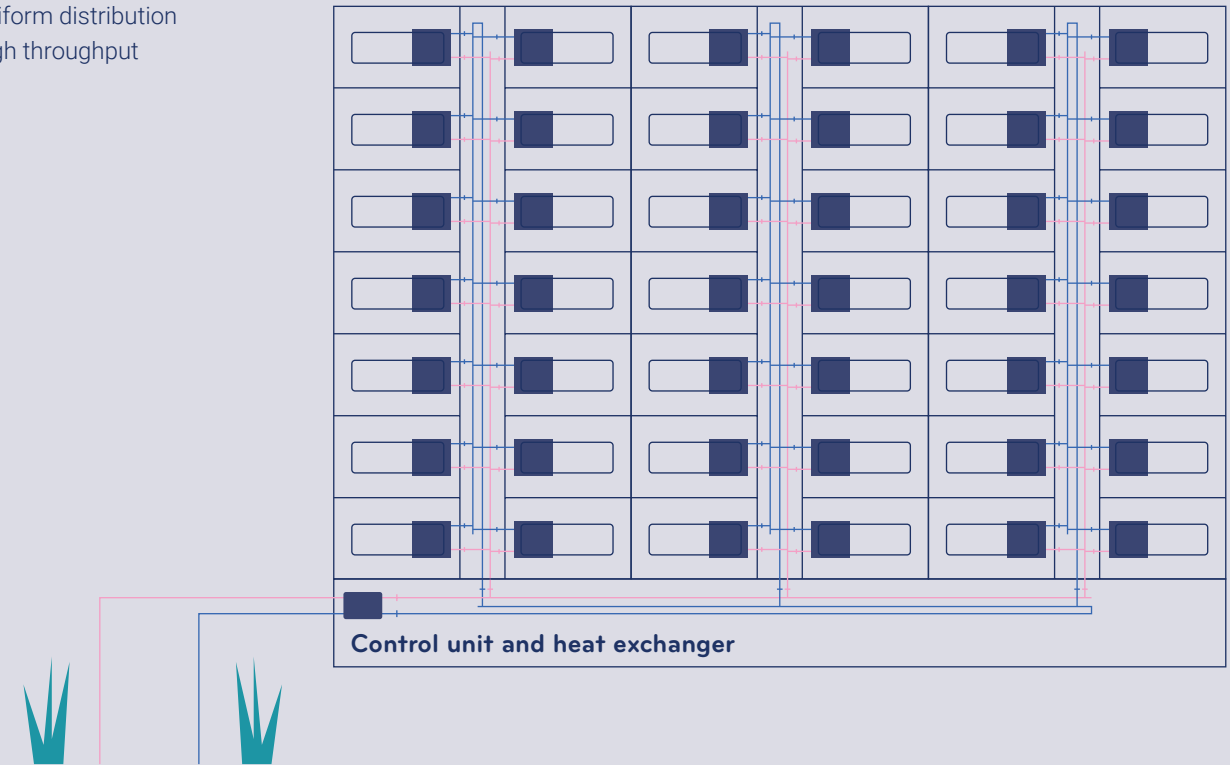


COOL SOW SYSTEM COMPONENTS

- Cool Sow floor with water circuit
- Cooling medium, such as spring water
- Heat exchanger
- Control unit
- Primary and secondary pump
- Primary and secondary control valve

TICHELMANN SYSTEM PROPERTIES

- Uniform distribution
- High throughput



ENERGY YIELD FROM THE COOL SOW SYSTEM

The total heat production of the farrowing sows can be as high as 700 W. An average of 37 W of heat can be produced per sow per farrowing house period, that is discharged to the cooling water. This is much higher in the summer (67 W) than in the winter (10 W). Depending on the season, up to 26% of the sow's sensible heat production can be discharged through the Cool Sow System. This heat can be used to heat the weaner house through the heat exchanger.

RESULTS OF THE COOL SOW SYSTEM

Lactating sows

- Higher feed intake of the sow of 300 g a day
- Lower weight loss by the sow (1.5%, 3.5% in the summer)

Piglets in farrowing pen

- 1.6% fewer veterinary treatments in comparison to weaned piglets
- Higher weaning weight of the piglets (400 g, 500 g in the summer)
- An extra live piglet in the next litter

Weaned piglets

- Lower energy value conversion of 0.04
- 2.3% fewer piglets treated
- 2.4% fewer deaths

Economic result

- Additional yield/farrowing pen/year