



## Light and Air

### Ventilation Systems

#### Intelligent ventilation systems for an ideal dairy barn environment



Modern cubicle cattle house with LUBRATEC® wind protection systems on gable and side

#### High-performance products for maximizing milk yield in dairy farming

The HUESKER Group has developed, manufactured and marketed customized system solutions for the agricultural sector for over 30 years.

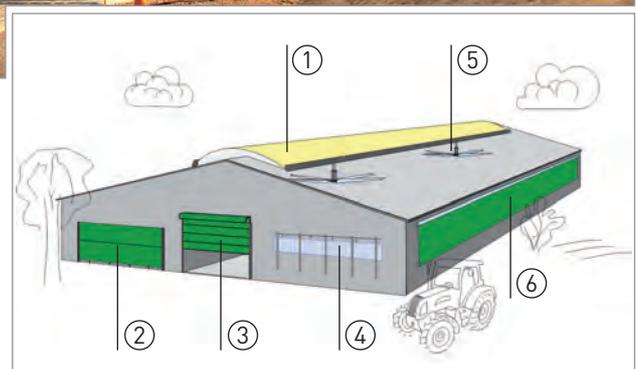
Intelligent constructions that guarantee adequately sized ventilation openings, efficient air extraction systems and systematic air distribution are fundamental to professional dairy farming operations nowadays. Yet, these criteria are not always considered in basic design requirements.

Factors such as dust, ammonia, heat stress, darkness, lack of oxygen and humidity affect the well-being of livestock. Undue exposure will severely diminish the vitality of cows and their resistance to diseases.

To maximize performance, the animals need plenty of light, fresh air and rest.

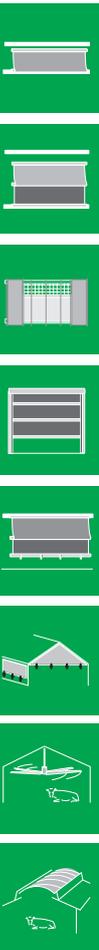
Daylight, cooling, a plentiful supply of oxygen and the constant extraction of humidity make a positive contribution by enhancing the vitality, resistance to diseases and productivity of livestock.

An ideal indoor environment can only be created through the expert co-ordination of all components.



#### HUESKER products in use:

- ① SKYTEX® light ridge for 4-7 m construction widths
- ② LUBRATEC® roller blind front for extra-large openings
- ③ LUBRATEC® Stabidoor for fast vehicle access to feed table
- ④ LUBRATEC® lift window, sealed for low-temperature-sensitive areas
- ⑤ VENTITEC® high-volume fans for energy-efficient air distribution and cooling
- ⑥ LUBRATEC® side ventilation systems for large-area air intake





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As a full-service provider of natural ventilation systems, HUESKER can vouch for optimum indoor conditions in housings for dairy cows, pigs and poultry. The product range comprises wind protection and side ventilation systems, rolldoors and folding doors, lift windows, light ridges and fans.

#### LUBRATEC® – systematic fresh air supply via intelligent side ventilation systems

Light and air are vital ingredients in milk production. And both are available in limitless quantities outside the livestock building. Air intake is primarily via the eaves side, where a maximum inlet size is always desirable. Although housings are traditionally built with a solid base wall, this makes no contribution to improving the indoor environment. If anything, it simply causes animals in a lying position to be engulfed in a cloud of their own humid breath.

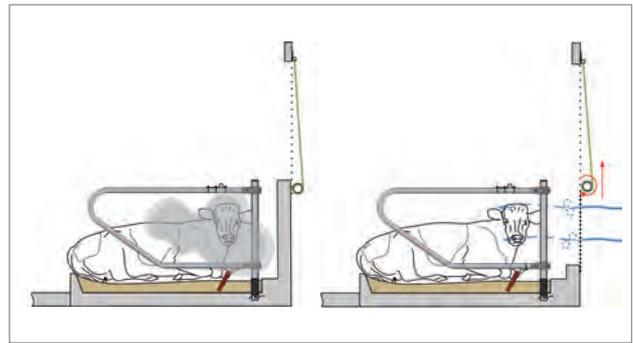
The issue as to whether air should be admitted at the top, in the middle or at the bottom in winter is frequently overrated. It is far more crucial to ensure adjustability in winter and generous openings in summer. Moreover, with particularly large buildings, it is essential to make use of any available gable openings.

Based on HUESKER's long years of experience, LUBRATEC® offers a rich variety of top-performance products. In-house manufacture of the fabrics also allows the provision of solutions tailored to individual needs.

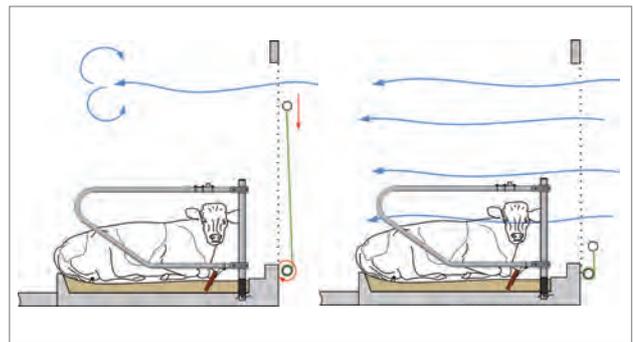
#### SKYTEX® Light Ridge, with efficient daylighting and ventilation performance

SKYTEX® light ridge is designed with aerodynamic wind deflectors that ensure the continuous extraction of stale air from the housing. The lack of a closing element in the light ridge is deliberate: although stale air may serve to raise the temperature in livestock buildings, the sharp deterioration in air quality, due to the rising humidity and animal emissions, actually makes this counterproductive in terms of milk yield.

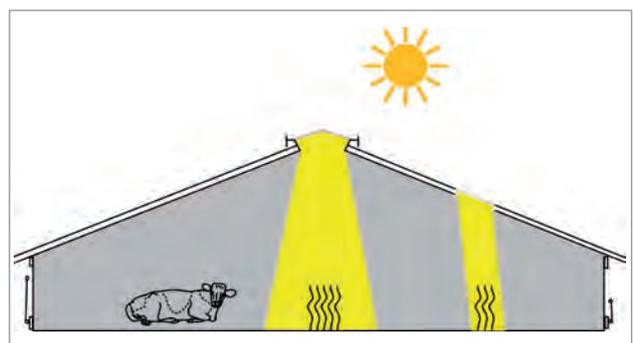
To avoid a greenhouse effect, official guidance recommends that light ridges should be no wider than 3-4 m. The hotly debated use of translucent panels in roof coverings involve similar problems. However, light is an essential ingredient in milk production. The SKYTEX® solution involves admitting daylight into the housing such that it is diffused widely across the interior. This is achieved by two design features: a wide, round-arch geometry and a filtering, light-scattering fabric. The oblique wind deflectors and curved shape combine to create a negative pressure zone



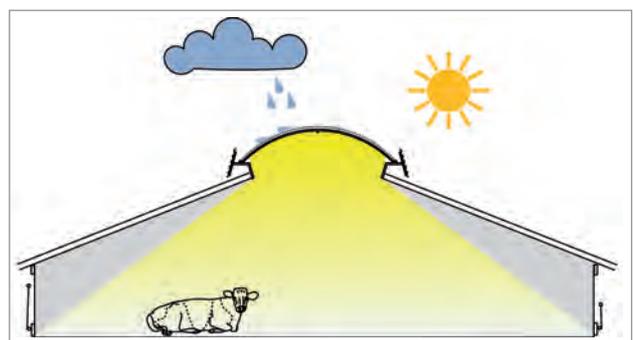
*Resting cow in cloud of humid breath / resting cow supplied with fresh air*



*Top opening roll-up ventilation in winter / top opening roll-up ventilation in summer*



*Narrow light strips promote greenhouse effect*



*Daylight diffused widely across housing interior by SKYTEX® light ridge*



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above the ridge, even when there is little wind, and thereby draw air from the interior.

The intelligent use of daylight also helps to conserve precious energy resources given that artificial lighting requires 16 hours of electricity per day. Daylight, on the other hand, is available almost in limitless quantities just above the roof and free of any costs. With the SKYTEX® light ridge it will be used optimal.

#### VENTITEC® - air circulation as the critical factor

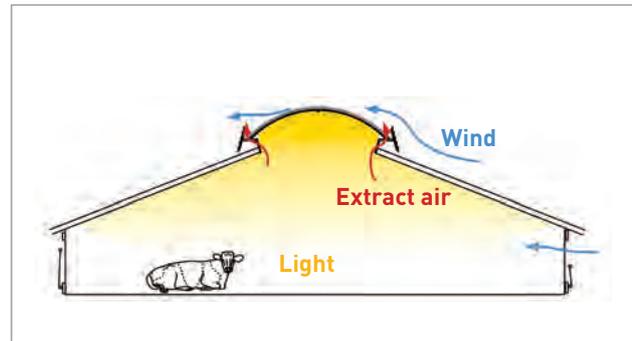
Today's cubicle cattle housings are often designed as vast structures with the aim of maximizing interior air volumes. However, in summer – when the cows need wind for cooling – this air often stands in the building for long periods. The milk yield will then suffer due to the resulting heat stress. Through their aerodynamic blade shape, VENTITEC® high-volume fans transport fresh air to the animals from the building perimeter, thereby generating a cooling draught. This dispels the envelope of warm air around the resting animals and enables fresh perimeter air to blend with the existing indoor air.

VENTITEC® high-volume fans ensure continuous air circulation throughout the livestock building. They have an energy demand some 80% lower than the alternative small vertical fans.

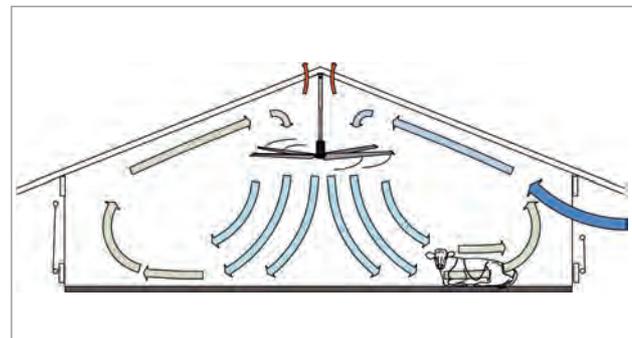
HUESKER offers a fully co-ordinated system to optimize the indoor environment and ventilation of livestock buildings. The LUBRATEC® side ventilation/wind protection systems, SKYTEX® light ridges and VENTITEC® high-volume fans represent premium-quality products, provided from a single source.

In addition to the Light and Air segment, HUESKER also supplies first-rate products for other applications:

- High-grade weatherproof silo covers for manure containers
- Gastight roofs for the biogas industry
- Flexible concrete protection linings and DIBt-approved membrane-lined pits for manure storage
- Flexible storage tanks for liquids
- A professional cargo securing system for agricultural vehicles
- Field shelters



Natural light and free ventilation with SKYTEX® light ridge



Air circulation generated by VENTITEC® in livestock building



VENTITEC® High-Volume Fan used in cubicle cattle housing

Further  
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