

## Textile ducting for process ventilation ensures good production environment



### Europe's state-of-the-art cattle slaughterhouse

In spring 2014 DC Beef opened their new high-tech slaughterhouse in Holsted that is scheduled to process 4,500 cattle a week - about half of the total number that is slaughtered weekly in Denmark.

#### FACTS:

Consultant:	Alectia, Odense
Installer:	Euro-Vent ApS
Materials:	KE Fibertec

**Textile Based Ventilation in meat processing room and three cutting rooms**

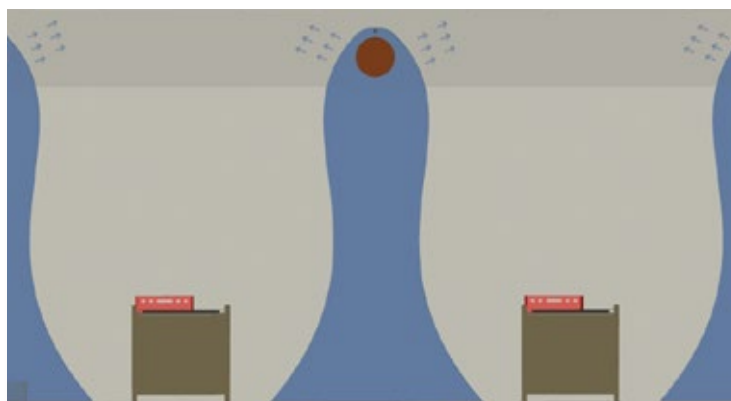
To ensure efficient air distribution and correct temperature in all rooms, a textile based ventilation system was chosen. This is a well-suited ventilation solution for this type of environment. Further, textile ducting ensures correct working conditions without draughts.

Approx. 32,000 m<sup>3</sup>/h air is distributed into the processing room through a plenum and a ventilation duct (hybrid) of 96 metres.

The cutting rooms are fitted with three ventilation units, two of 56,000 m<sup>3</sup>/h and one of 28,000 m<sup>3</sup>/h. These three units all have plenums made of insulating panels (non-textile). The total length of ducting is approx. 300 metres (hybrid).

**Air coating of ceiling to avoid condensation**

Refrigerated processing rooms may have problems with condensation on ceilings and cold surfaces. To avoid this problem, laser-cut holes in the duct fabric direct the air towards the ceiling, providing an air coating of the surface. That eliminates condensation and contributes to observing strict hygiene requirements.



**TECHNICAL DATA:**

Construction year: 2014  
 System: KE Inject® Hybrid System  
 Colour: Melon yellow (RAL no. 1028)  
 Material: LDC-FR  
 Suspension: SafeSlider

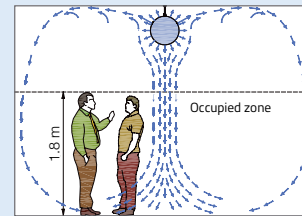
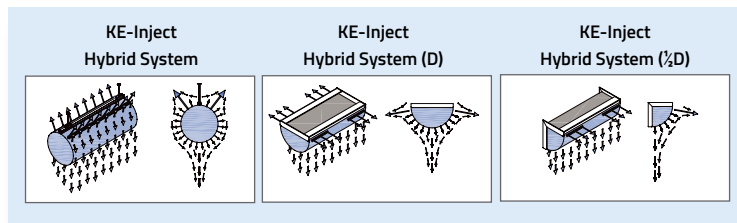


### Hybrid low impulse ventilation

The KE-Inject® Hybrid System is produced in the form of round ( $\emptyset$ ), half-round (D) or quarter-round ( $\frac{1}{2}D$ ) ducts in a permeable fabric with groups of laser-cut holes in the duct surface.

The laser-cut holes are made in the same patented hole design as with the KE-Inject System. From a ventilation technology perspective, the KE-Inject Hybrid System can be regarded as a combination of active high impulse ventilation and passive low impulse ventilation.

In short, the KE-Inject Hybrid System is a low impulse duct that is made active by means of laser-cut holes.



### OCCUPIED ZONE FOR HYBRID SYSTEMS

As with low impulse ventilation, the occupied zone is not a standardised area, but a zone which is defined from one project to another in consultation with the architect and client. The occupied zone is often defined as the zone from the floor up to a height of 1.8 m above people who are in a standing position doing their job, while this height is set to 1.1 m for people who are seated.

### ZONE 1

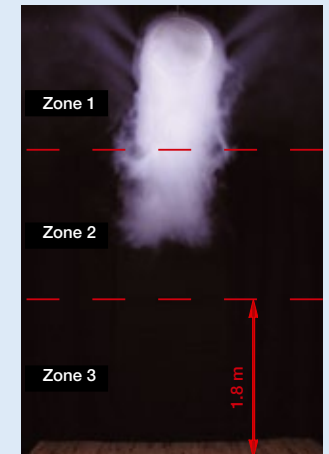
The air is delivered partially at high velocity through the holes or nozzles and at low velocity through the textile material. The excess pressure in the centre of the air jets generates an inflow and causes entrainment of room air, as well as part of the duct's own air. The air's acceleration under the duct (low impulse flow) is particularly reliant upon the cooling load per running metre of ducting.

### ZONE 2

The warmer room air is displaced by the cooled air from the duct under the hybrid duct. Part of the low impulse flow is entrained into the high impulse flow. The velocity gradually decreases in the high impulse flow. The velocity decreases in inverse proportion to the distance from the duct.

### ZONE 3

When entering the occupied zone, it is important to ensure that both the air velocity in the low impulse flow and the air velocity in the jet originating from the holes or nozzles have been adapted to the conditions so that the room's comfort requirements are met.





We always recommend textile based ventilation for the distribution of cooled air in processing rooms at slaughterhouses. It is a very efficient solution that helps prevent condensation on the ceilings.

Textile ducts ensure even air distribution, a uniform temperature and a healthy indoor climate for the employees.

**Jacob V. Andersen, Project & Sales Engineer, Euro-Vent ApS**



KE Fibertec AS is market leader in Textile Based Ventilation. We create good indoor climate through our tailored textile ducts for installation in sports arenas, offices, laboratories, schools etc.



Textile ducts are customizable, easy to install, washable, hygienic, and come in all shapes and colours.

For more information please visit our website: [www.ke-fibertec.com](http://www.ke-fibertec.com).

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