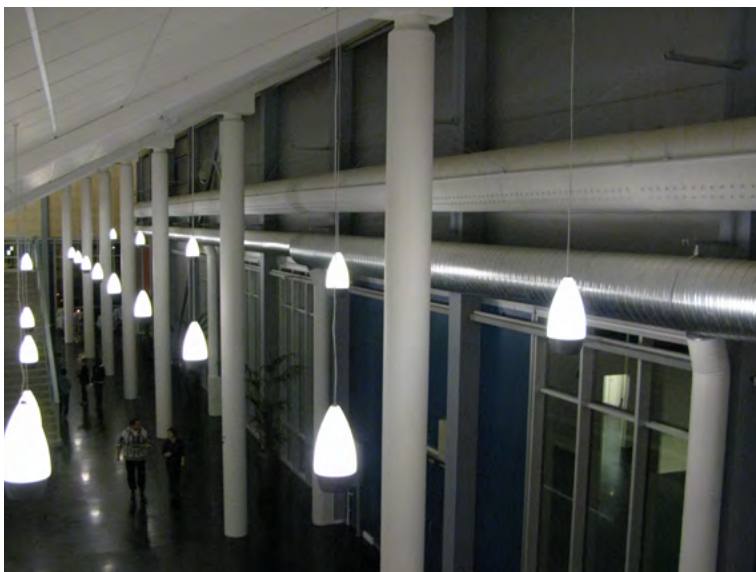


Draft-free air distribution in multi-purpose arena



KE-DireJet ducts in the arena



KE-DireJet ducts in the foyer

KE-DireJet® System - the versatile solution

In 2007 KE Fibertec was involved in an exciting project with ventilation, cooling and heating of a new sports arena, Arena Fyn, Odense in cooperation with Ventilationsgruppen, Odense (now GK DANMARK A/S).

For the distribution of air the contractor chose a KE-DireJet® System from KE Fibertec, a system that was put to the test in this multi-purpose arena that can be transformed from a concert hall into a skating rink in no time.

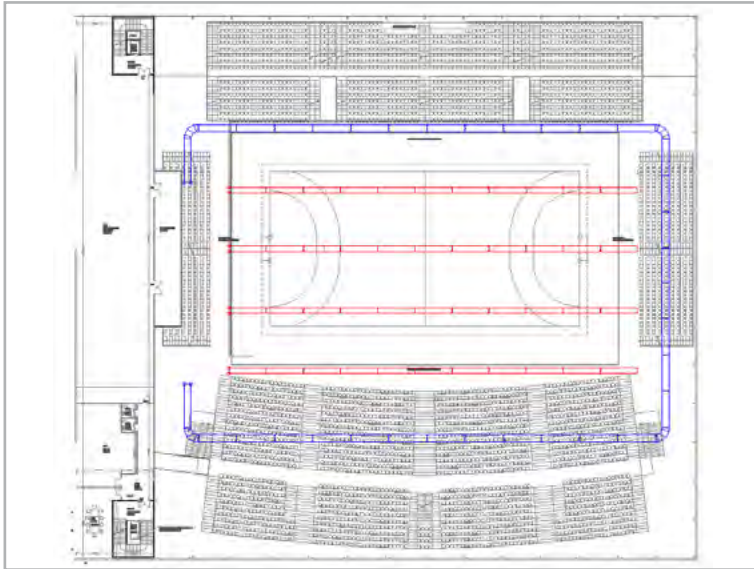
With an area of 8,500 m² and with room for more than 4,000 spectators the arena is a well-suited venue for big sports and cultural events.

Facts

Customer:	Odense Congress Center/ Odense Kommune
Installation contractor:	Ventilationsgruppen, Odense
Textile ducts:	KE Fibertec AS

TECHNICAL DATA:

Type:	KE-DireJet® System
Air volumes:	
Outer ring:	max. 30,000 m ³ /h
Centre system:	max. 40,000 m ³ /h
Foyer:	10,000 m ³ /h



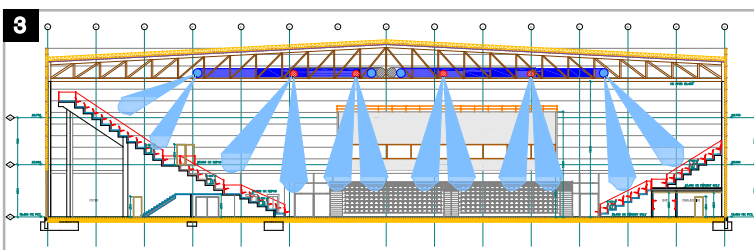
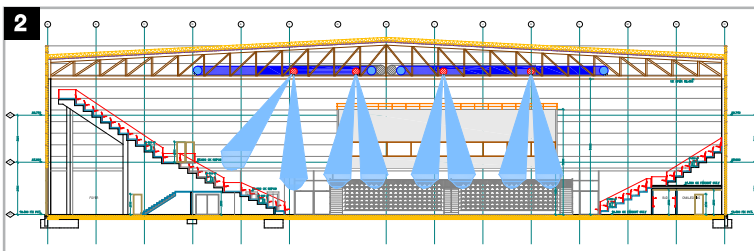
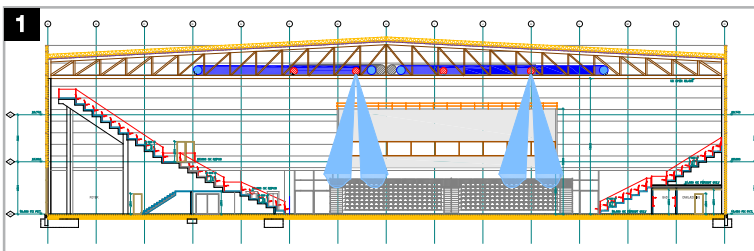
System layout of the arena

30% shorter installation time compared with steel ducting

In cooperation with Ventilationsgruppen in Odense, KE Fibertec AS has designed the air distribution system for the arena and the adjoining foyer. All through the construction process KE Fibertec has provided technical advice, acoustics calculations, drawings, on-site measurements, as well as an extended technical dimensioning support.

In coordination with the consulting engineer KE Fibertec decided upon a KE-DireJet® System with nozzles fitted in a non-permeable material. The nozzles are placed at different angles allowing the entire arena and seating areas to be effectively ventilated and heated. And, it should be noted, without causing comfort problems.

In addition the installation of textile ducts was 30% faster compared with steel ducting.



Directional delivery of air through nozzles

The ventilation system is designed with a VAV regulator and a maximum air flow of 70,000 m³/h at $\Delta T \pm 10^\circ\text{C}$. To meet these requirements KE Fibertec based their solution on a KE-DireJet® System combining directional delivery of air through nozzles with a large air penetration length.

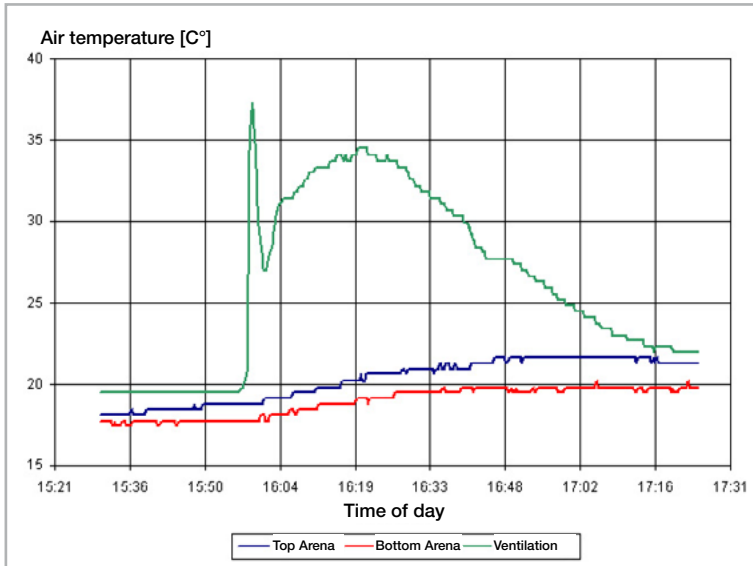
The requirement specifications of the system stipulated that the ventilation demands of different load situations should be considered. Therefore, KE Fibertec suggested a design including an outer ring (blue) and four ducts forming a centre system (red).

This layout allows for three control strategies that take practically all types of events in the arena into account:

Situation 1 - Practice situation:
2 x 10,000 m³/h basic ventilation

Situation 2 - Exhibition situation or similar:
4 x 10,000 m³/h

Situation 3 - Full load:
4 x 10,000 m³/h + 2 x 15,000 m³/h



Air temperatures during a handball match in the women's league

Excellent air distribution

As part of KE Fibertec's project validation and verification acc. to ISO 9001 the ventilation was measured during a match in the women's handball league.

Even though the system was not turned on until kick-off at 16:00, the ventilation system soon contributed to heating the arena to the desired level. After approx. 30 minutes of operating time the temperature in the arena was 20°C, equivalent to the setpoint.

At the top of the arena the temperature will naturally rise as a result of heat and air pollutants being pushed upwards and extracted below the ceiling. During the match the vertical temperature gradient of the room was constantly below 2°C. That equals a temperature gradient of approx. 0.2°C/m which is very satisfactory.

The low gradient indicates a very good air distribution in the arena. Under no circumstances will the gradient cause any comfort problems for the spectators.

[Read more at ke-fibertec.com/ke-direjet-system](http://ke-fibertec.com/ke-direjet-system)



We are very satisfied with the solution involving textile ducts with nozzles. The solution works as we wanted and maintains the required indoor climate of the arena.

Niels Hvid Søndergaard, Technical Manager, Arena Fyn (end user)
Jacob Christensen, Technical Project Engineer, Ventilationsgruppen Odense (installation contractor)





Efficient ventilation with nozzles

Having hosted a large number of events in the arena, the ventilation system of Arena Fyn has by now definitely passed the test.

The arena is daily home of GOG's women's team in the handball league. In addition to that Arena Fyn has hosted several big concerts and sports events.

KE Fibertec has been involved in sports arena projects all over the world for which KE-DireJet® systems have been projected and installed.

Other Danish projects are Skjern Bank Arena and Gigantium Ishockey Arena where measurements have documented equally efficient ventilation.



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.

For further information please contact:

KE Fibertec AS

Tel. +45 75 36 42 00

info@ke-fibertec.dk

www.ke-fibertec.com

AIR THE WAY YOU WANT



KE Fibertec AS
Industrivej Vest 21
DK-6600 Vejen

Tel. +45 75 36 42 00
info@ke-fibertec.dk
www.ke-fibertec.com