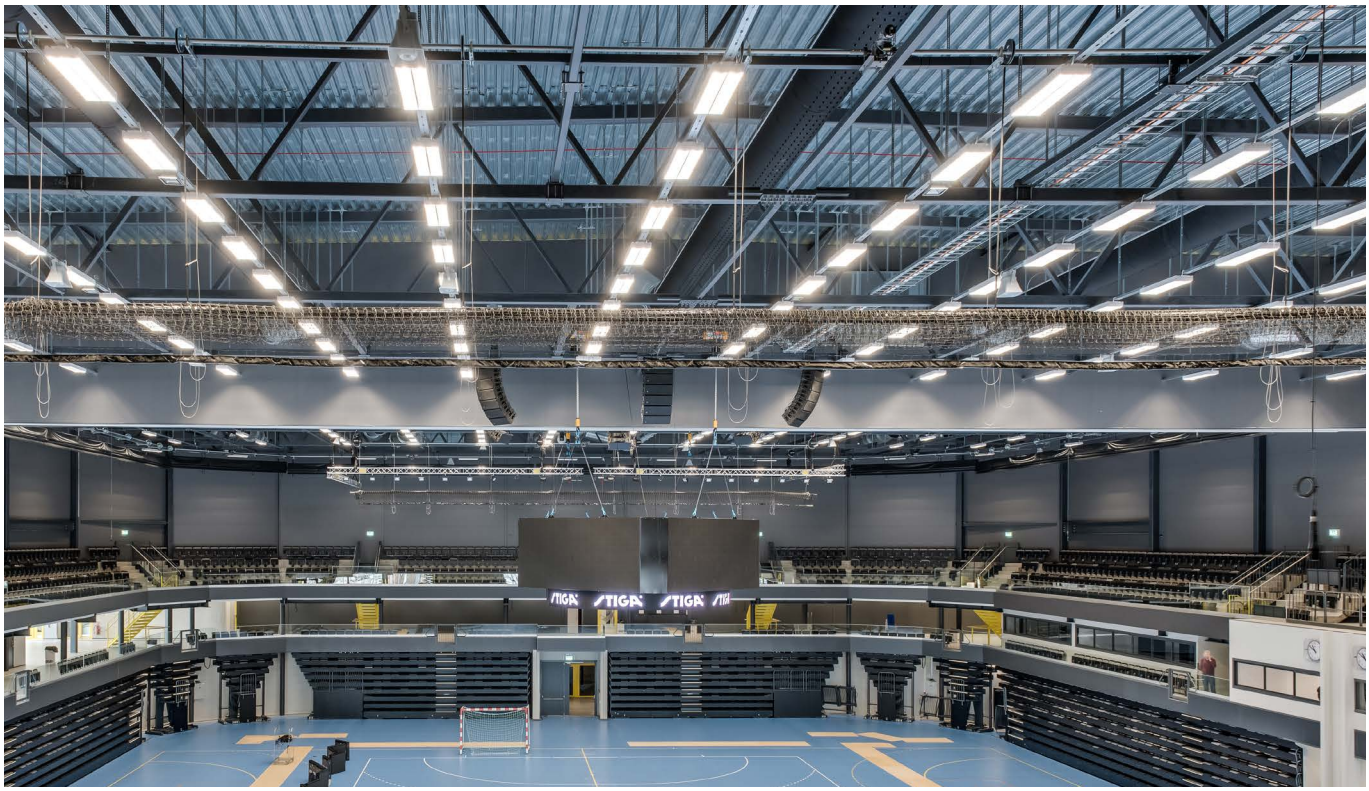
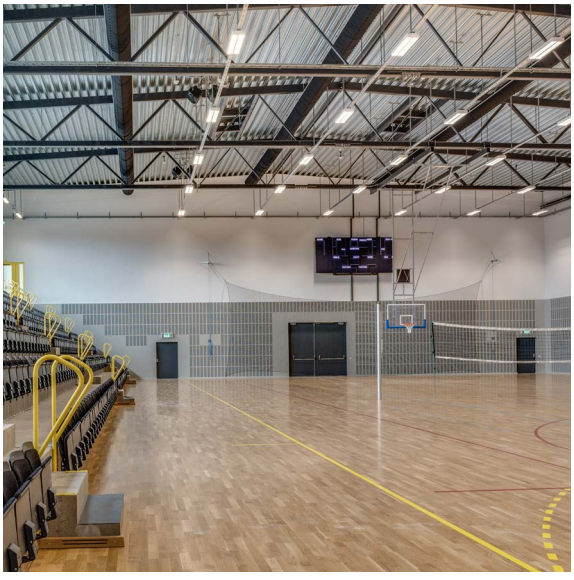
# Textile ducts with nozzles ensure healthy air quality in sports arena





## Efficient air distribution with high impulse ventilation

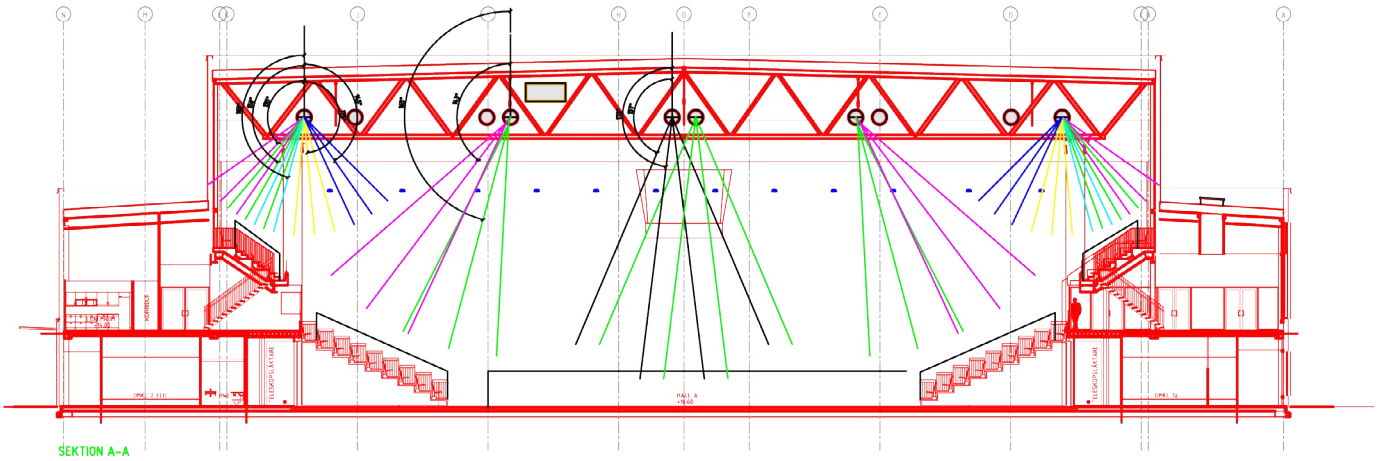
In June 2017, the city of Eskilstuna (Sweden) presented a new multi-purpose arena called Stiga Sports Arena.

The building has been designed to host a number of activities, primarily sports events, but also concerts and trade shows.

To ensure efficient air distribution the contractor chose high impulse ventilation, or more specifically, a KE-DireJet System from KE Fibertec.

This solution features textile ducts fitted with Ø18-24 mm nozzles that will enable directional air distribution and by that create healthy and draft-free indoor air quality for both athletes and audience.

# Case: Stiga Sports Arena




## Directional air distribution

Above drawing illustrates the air distribution in hall no. 1 which is the biggest of the three halls.

When the system is running and all textile ducts are performing to maximum capacity, they supply a total quantity of air of approx. 119,000 m³/h.

The nozzles fitted in the textile ducts allow an air throw of 14 metres into the occupied zone. A penetration length of >20 metres will ensure that the heated air with a temperature difference of 8°C will be directed to the designated areas.

**TECHNICAL DATA:**

| | |
|---|---|
| Year of construction: | 2017 |
| System: | KE-DireJet |
| Colour: | Black |
| Material: | ZeroWeave |
| Suspension: | Safetrack |

### ZONE 1

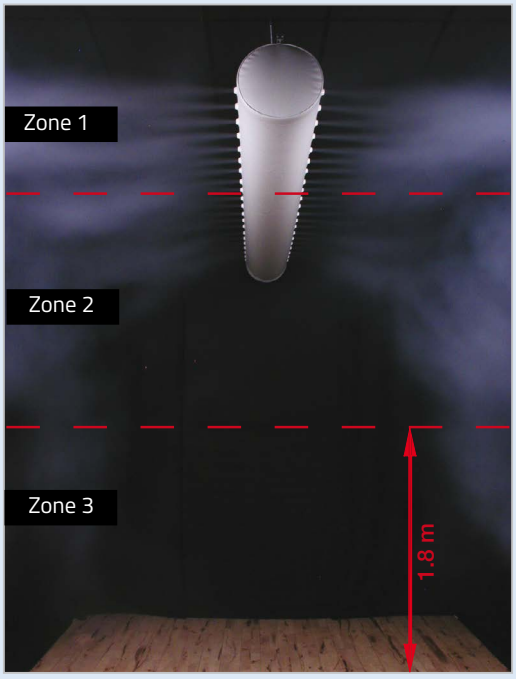
The air is delivered at high velocity (21 m/s in hall 1) through the nozzles of the KE-DireJet System. The excess pressure in the centre of the air jets generates an inflow and causes entrainment of room air towards the supply air jet.

### 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

In rooms with demands on the comfort level, such as sports halls, the air velocity entering the occupied zone has been adapted to the conditions primarily depending on the activity level and the clothing of the occupants (room category). In order to ensure sufficient air velocity the distance from duct to occupied zone must be longer than the calculated throw length.



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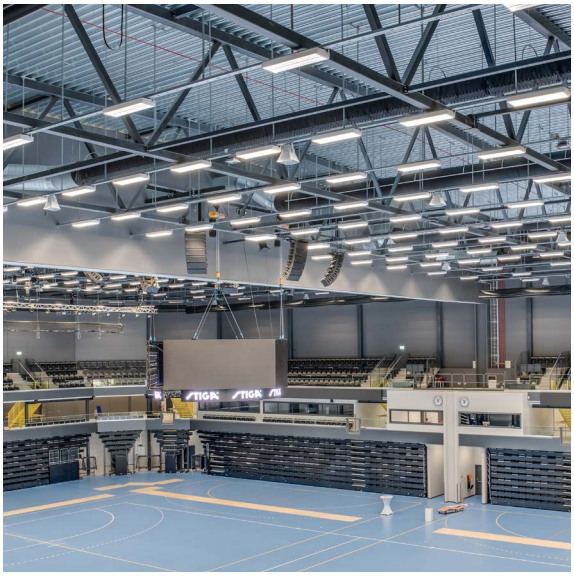


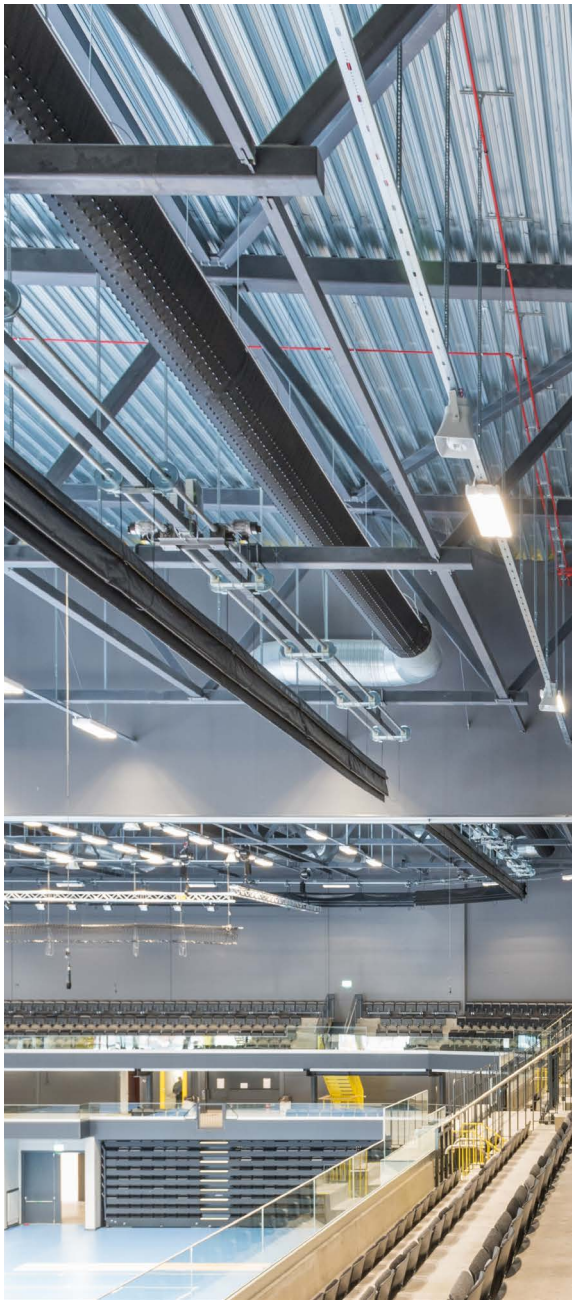
## Flexible solution using flexible materials

The many different activities taking place in a multi-purpose arena such as this put great demands on the air distribution as activities and therefore the indoor climate  requirements vary. That requires very accurate dimensioning of the systems and make heavy demands on the ventilation product.

The flexibility of the textile ducts also benefits the installation of the ducts, especially with tall rooms such as sports halls.

For such installation jobs the light-weight duct material is easy to handle and at the same time a cost-effective solution.

# Case: Stiga Sports Arena



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

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