KE FIBERTEC

Efficient air distribution in the largest marine mammal park in Europe

Fresh air for both humans and animals

In 2014 the Dolfinarium in Harderwijk, Holland needed a refurbishment that would improve the indoor climate and create a more energy efficient building. The consultant specified a textile based ventilation solution as the target was to achieve a draft-free and uniform air distribution.

FACTS:

Architect:	Kooij en Dekker Harderwijk
Consultant:	BW Adviseurs Zeewolde
Installer:	Scheer & Foppen installatietechniek B.V.
Materials:	KE Fibertec Benelux B.V.

Efficient air distribution and a minimum temperature difference

The inner ring takes care of the pool and the outer ring controls the air distribution in the public area. This is not an easy job to balance these two rings and according to sales engineer Frans Noordemeeer from KE Fibertec they had to remove some rows of seats for them to be able to install the textile ducts.

From the inner ring the air is distributed to the occupied zone with 18mm nozzles. They provide for fresh air to be delivered at a low speed which will minimize evaporation of the poolwater. The outer ring follows the external facade and has a high induction pattern for a shorter throw. In this way we can guarantee a comfortable climate for the visitors.

Together these two ring-shaped diffusors form an efficient air distribution system with only a slight temperature difference between the different levels.

Energy savings

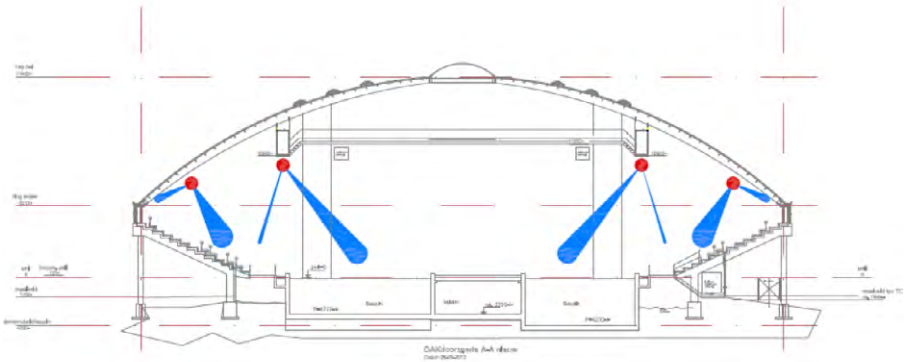
The textile ducts are designed so that they meet the requirements in terms of maximum energy consumption. To save energy the mechanical ventilation system is reduced by at least 50% in the night.

INNER RING:

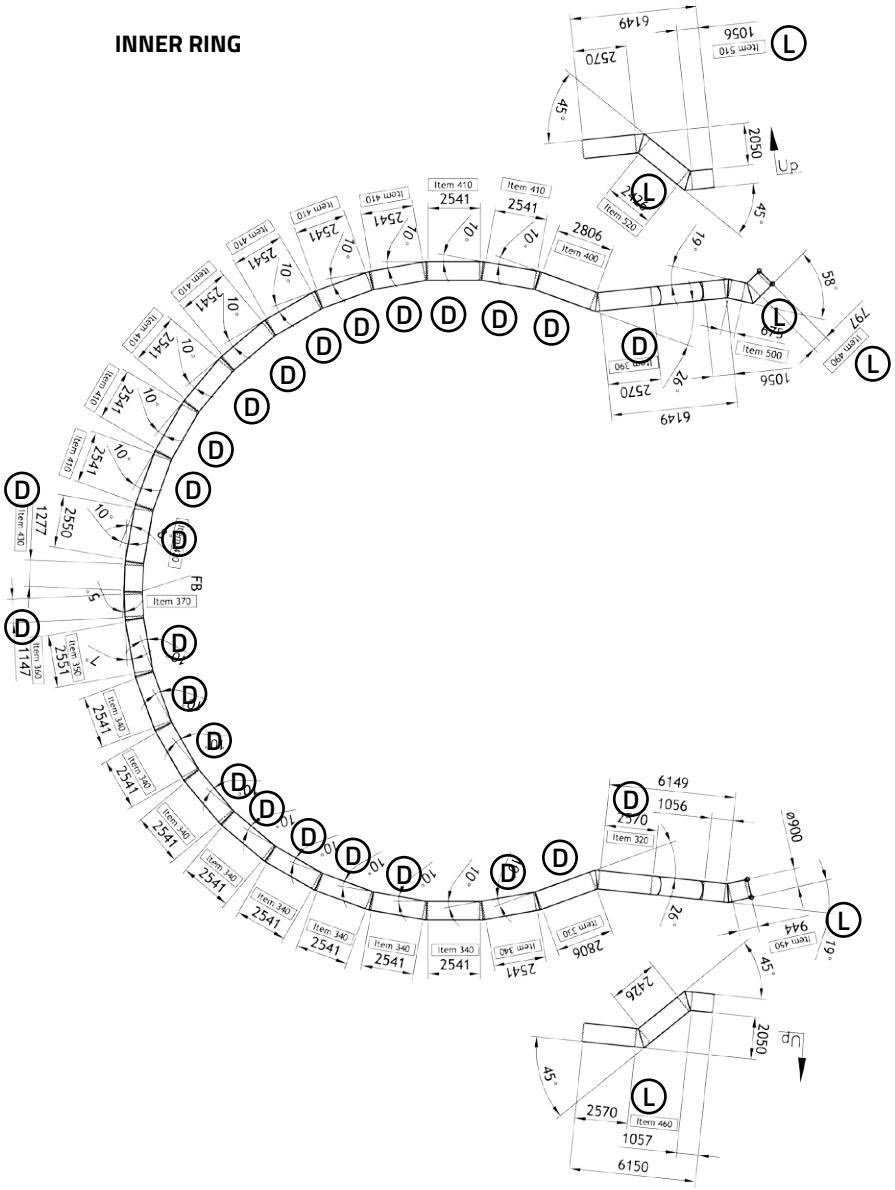
- 2 x 16.000m³/h
- Delta T + 7K
- 18mm nozzles
- 120 Pa

OUTER RING:

- 2 x 16.000m³/h
- Delta T + 3,5 K
- Low velocity
- 120 Pa



INNER RING



DELIVERY AREAS

The entire surface of the KE-Low Impulse System is permeable, which means that the total delivery area corresponds to the geometric surface area. The geometric surface area, A, is given in [m2].

KE-Low Impulse System: A = diameter · p · duct length

KE-Interior System (D) A = (1/2) · diameter · p · duct length

KE-Interior System (½D) A = (1/4) · diameter · p · duct length

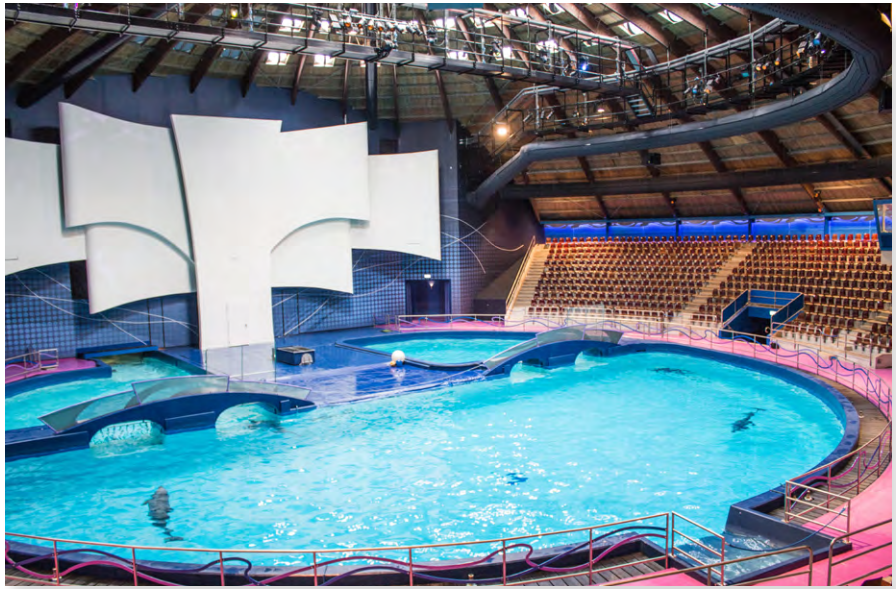
In the case of the KE-Inject System and KE-Inject Hybrid System, KE Fibertec has, for the sake of manufacturability, grouped the holes in different standard patterns, depending on which type is selected. A standard pattern is made up of an exact number of hole steps and the delivery area can only be modified by changing the number of hole rows. Consequently, the unit, number of hole rows, is used as a parameter for the delivery area of the KE-Inject System. In the case of the KE-Inject Hybrid System, the whole of the duct's surface, including the holes, will act as the delivery area.

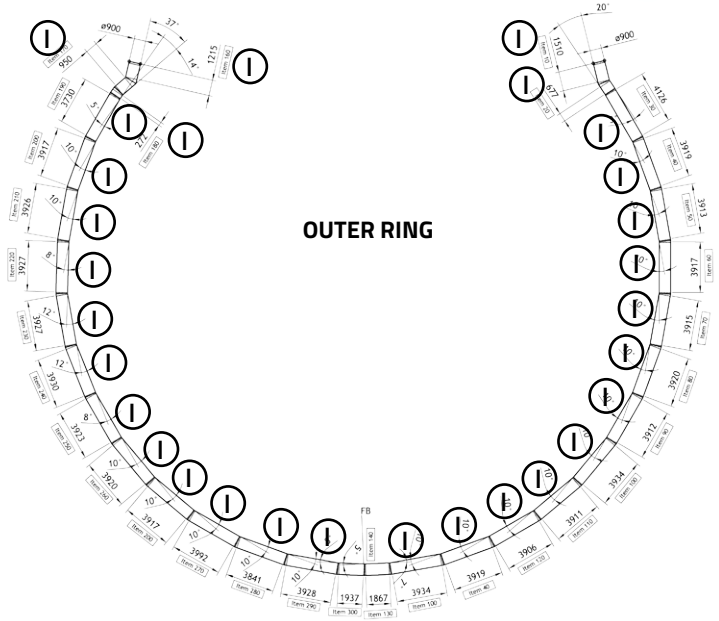
In the case of the KE-DireJet System and KE-DireJet Hybrid System, the delivery area depends on whether a Ø12 mm, Ø18 mm, Ø24 mm, Ø48 or Ø60 mm nozzle is selected, as well as how many nozzles are used per running meter of ducting. With the KE-DireJet Hybrid System, the whole of the duct's surface, including the nozzles, will act as the delivery area.

Ⓓ **KE-DireJet® System**

Ⓛ **KE-Low Impulse System**

Ⓘ **KE-Inject® System**





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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