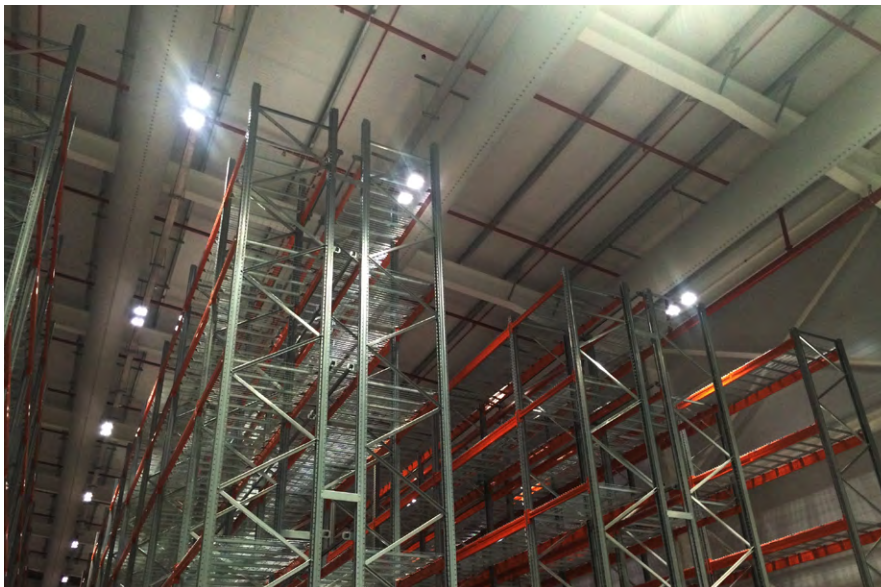


High impulse system maintains conditions in close control warehouse



Long throw length

The air is supplied at high level via direjet fabric ducts located over each aisle, return air is via 2m high louvres. These are located at floor level adjacent to the AHU's at one end of the building.



FACTS:

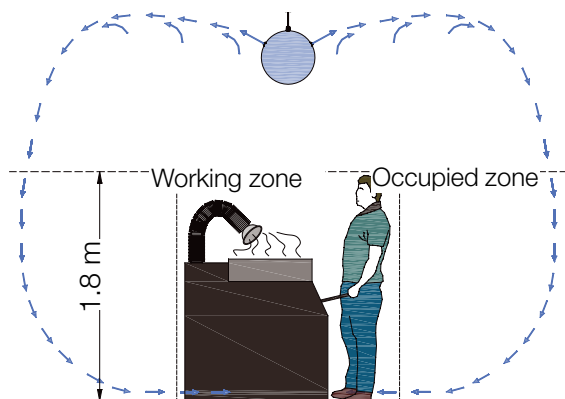
Designer:	Airconmech Ltd
Installer:	Airconmech Ltd
Materials:	KE Fibertec UK Ltd.

Directional delivery with Ø24 mm nozzles

The KE-DireJet® System is produced in the form of round (\emptyset), half-round (D) or quarter round ($\frac{1}{2}$ D) ducts and is made of a coated, non-permeable textile material with rows of conical nozzles for 100% active and directional delivery. From a ventilation technology perspective, the KE-DireJet System can be regarded as an active high impulse system for mixing ventilation.

KE Fibertec is the only distributor of textile ducts that offers five different nozzle sizes: Ø12, Ø18, Ø24, Ø48 and Ø60 mm. In this case we chose the Ø24 mm nozzle and each nozzle delivers 20 m³/h with a static pressure of 120 Pa.

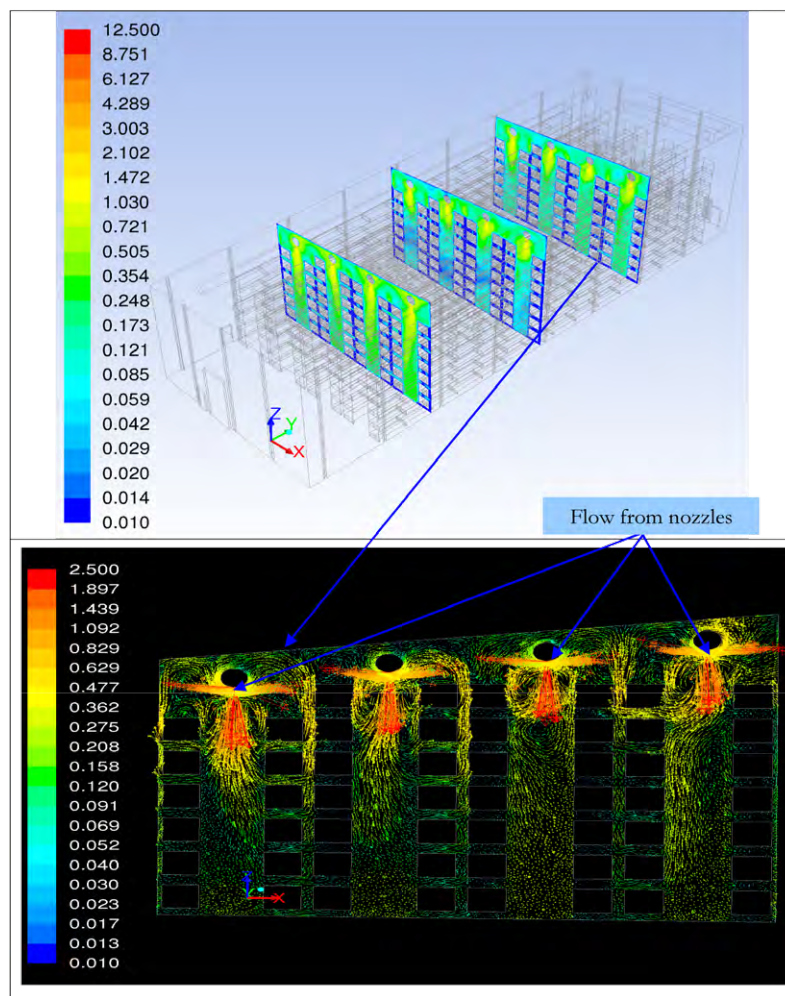
The flexibility in the choice of nozzle size offers great benefits as the KE-DireJet System can be used in virtually every type of premises that requires mixing ventilation, even in extremely large premises, such as high-bay warehouses like Chemco or large sports arenas.



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We had allowed much longer to install the fabric ducts, but we actually managed to install 60m of duct per day with a pair of guys, a huge time saving compared with conventional steel ducting

Cathal McGinley - Airconmech



Contour and vector plots of velocity (in m/s) in Y-plane-3 in 'Chemco (Ireland) LTD- warehouse-Building-C (Store-1)'

CFD simulations

KE Fibertec was commissioned to provide a CFD simulation of the warehouse. The chemicals being stored had to be kept within a narrow temperature range.

The scope of the CFD involved modelling a conventional system with actuator controlled swirl diffusers as well as the fabric duct system. The conventional system managed to achieve the requirements for an even temperature distribution, but the fabric duct system far exceeded them.

Because the distribution from a fabric duct is continual along its length, it encourages all of the air in the space to move as one rather than the air being moved around in a non-uniform way.

Efficient air distribution and energy savings

It can be seen on the CFD that in the summer condition, the air above the fabric duct is drawn down into the flow from the nozzles, this ensures there is no blanket of hot air at roof level, something that is common with conventional systems.

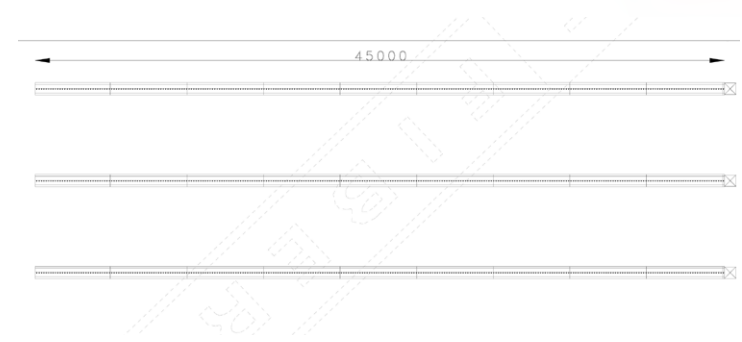
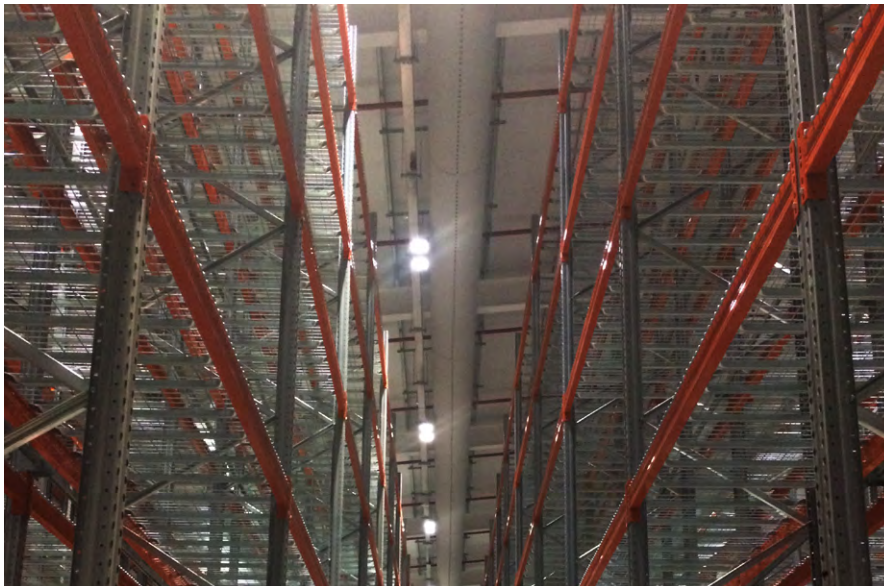
The uniform jet of air pressurises the aisles, this drives the air through the product on the racking and back up to high level where it is re-circulated.

This efficient air distribution is not just great from a comfort point of view, it also saves energy, particularly when the system is working hard to maintain a set point in either heating or cooling mode.



The CFD said we would achieve a very small temperature differential, but it's great to see and experience the conditions in the completed building

Adam Taylor - KE Fibertec UK



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We have 10 sensors dotted around each warehouse, and have a temperature difference of 0.5 degrees throughout the space

John Quinn - Airconmech

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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