

2019

Innovation in Composite Design | **Winner:** Cecence

Composite overhead catenary system for Light Rail utilising carbon fibre and associated composite support poles

Overview

Cecence is the designer and manufacturer of a composite overhead catenary system for Light Rail utilising carbon fibre and associated composite support poles.

As composite engineers, Cecence have focused on exploiting all the benefits of composite materials within the system.

Firstly; the ultra-low weight to high strength and stiffness of carbon in the catenary cable means the span between poles can be moved twice as far apart, requiring half the number of support structures. Also with carbon fibre's negligible coefficient of thermal expansion the cable doesn't need any tension compensating devices, such as bulky counter-weights or spring tensioners. All this reduces the number of parts and overall clutter, ultimately reducing the environmental impact.

Secondly; Using electrically non-conductive glass fibres for the pole and cantilever bracket arm there is no need to fit multiple insulators that are expensive and are one of the items that need replacing during the lifespan of a system.

These savings in weight, number of parts installation time and through-life maintenance are significantly lower, saving an estimated £1m for every 10km of straight section and the same again or more in servicing.

Cecence are currently in talks to see how this system could be rolled out across Tram/ Light Rail schemes and to see if this could be scaled up with both Network Rail and HS2. Individual elements of the project could be applied across the whole rail network."



Jeremy Whittingham, part of the organisational team for the Advanced Engineering Show (right), presents Mike Orange of Cecence with the award.

The Composites UK Industry Awards are presented at the black-tie dinner which is aligned with the Composites Engineering Show in Birmingham.

Keep an eye out for our annual nomination process every May for your chance to apply.

www.compositesuk.co.uk/awardsdinner