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SMOOTH TRAIN OF EVENTS HELPS BREAK RECORD FOR CHINESE RAILWAYS

The recent record-breaking test run for China's new high speed rail link between Beijing and the country's financial centre of Shanghai would not have been possible without the contribution of continuous casting technology specialist, Rautomead Limited, of Dundee, Scotland. By supplying the copper magnesium casting machines to nkt cables GmbH, of Cologne, Germany for installation in the nkt cables factories in China, to begin production of copper magnesium wire rod in China for use in the high speed rail contact wire, Rautomead was significantly involved in setting in motion the train of events that led to the 'Harmony' train, more prosaically known as CRH 380A, achieving a record speed for an unmodified passenger train of 486.1 km/hr or 303 mph.

All change in China's fast moving new world

China's drive to become the leading global player in the high speed rail business is no mere publicity stunt however. The Beijing-Shanghai high-speed rail link will be part of a nationwide network of high speed trains that will ease the pressure on China's airports and deliver a 'green dividend' in the form of an environmentally-friendly alternative to shorthaul internal flights between cities.

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The Beijing-Shanghai link in itself has cost £21 billion and is expected to double the capacity of the current service to a staggering 80 million passengers a year and halve time of travel to a mere five hours. And the world's fastest-growing economy has no intention of stopping there. By 2013, China will have the world's most comprehensive high-speed railway network with 800 sleek, grey-nosed bullet trains. China's 4706 miles of high-speed track, which already outstrips any other nation on earth, is expected to double to 10,000 miles by 2020. While its ambitions for the project even transcend its own national borders with plans already afoot for a service that will carry passengers all the way from London to Beijing in just two days.

A relationship built on harmony

Rautomead has established a long and harmonious relationship of trust with nkt cables, through its European operations at HFB Hettstedter Fahrleitungs-und Bronzedraht-GmbH, with the nkt cables group harnessing Rautomead technology for the production of copper-magnesium wire rod for over fifteen years, largely for use as the contact wire in high-speed rail systems for the European market.

China's reliance on nkt cable's expertise in the field is testament to recognition on the part of the Chinese railway authorities of the advanced technology available from Europe.

Outstanding properties

With its superior balance of tensile strength, electrical conductivity, good wear and environmentally neutral properties, copper-magnesium is the preferred alloy in many countries for contact wire in high-speed rail systems enabling speeds in excess of 300 mph.

Accurate control of magnesium

Magnesium is a light and volatile element, where even a very small variation in alloy content causes unacceptable changes in key physical properties of the product. It is, therefore, technically difficult to achieve the necessary consistency of quality in the manufacturing

process. Rautomead's unique resistance-heated continuous casting furnace design enables the magnesium to be accurately controlled and uniformly distributed in the alloy.

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Photo Captions:

Photo 1 : model RS 3000/5-CuMg casting machine

Photo 2 : Chinese high speed train

Photo 3 : as-cast rod, trolley wire & stranded cable