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CORPORATE NEWS:

HTS wire powers prototype coil for Japanese Maglev train system

Superconducting Maglev test vehicle
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Providing high-temperature superconductor wires for electric power, transportation, medical and industrial processing applications, as well as advanced power electronic systems, American Superconductor Corp.(AMSC), USA, has recently announced that Central Japan Railway Company (JR Central) has successfully utilised AMSC's high-temperature superconductor (HTS) wire in a prototype electromagnetic coil, designed for use as the lifting component in JR Central's magnetically levitated (Maglev) train system.

The Maglev train is the vehicle being considered for Japan's Chuo Shinkansen, an alternate rail route connecting Tokyo to Osaka. Continued economic and technical success will make HTS electromagnets a strong candidate for the maglev train.

The total potential HTS wire requirement for a full, commercial Maglev train system is expected to exceed 100 million metres. [62,137 miles]

JR Central designed the HTS Maglev coil and specifically chose AMSC's wire for this project for its high current-carrying capability. To optimise the current density, AMSC provided bare wires without the standard strengthening process of stainless steel lamination that is utilised on the company's wire for most other applications. Toshiba Corporation, using a new HTS coil manufacturing technique, completed final development and fabrication of the coil. Recent improvements in the coil winding techniques made it possible to maximise the current density of this special wire, while meeting vibration requirements for the Maglev train.

JR Central and Japan's Railway Technical Research Institute's (RTRI) current Maglev train system, which today must rely on low-temperature superconductor (LTS) electromagnets, recently set a world speed record of 581km/h [361 mph] for the highest speed attained by a manned superconducting magnetically levitating train, while "flying" about 10cm [3.94 inches] above its track.

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