

Traction transformers for London Desiro City Thameslink

Siemens, the most innovative supplier of transformers, is supplying traction transformers to Thameslink. Siemens will deliver a total of 238 traction transformers for the project: 124 one-phase multiple-unit transformers of four-traction-windings (voltage rating of 25 kV and rated power of 1,470 kVA) and 114 six-traction-windings transformers (voltage rating of 25 kV and rated power of 2,204 kVA). More than 80 units have already been manufactured and successfully tested.

With 326 million passenger journeys per year, the customer, Govia Thameslink Railway (GTR), is the largest railway operating company in the UK. As passenger numbers have increased by 40 percent in the past decade, Thameslink was looking to optimize commuter lines running from the south coast through London to connect with Bedford. GTR aims to increase capacity through London by up to 80 percent on certain lines. The collaboration between Siemens, GTR, and Network Rail is considered to be one of the largest rail infrastructure projects in the UK, making the journeys of millions of customers faster, more reliable, and more comfortable.

The new Class 700 trains, 50 percent longer than average Citylink trains, will run at a much greater frequency, revolutionizing some of the busiest commuter routes in the UK. In order to do this, the customer requested a much higher inrush current of approx. 300 A. This standard requires a specific core design for the six-traction-winding transformers.

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Traction transformer installed beneath the floor of a Thameslink train

All units are filled with ester fluid, an alternative insulation fluid which has a far greater fire and flash point than mineral oil, ensuring higher safety in operation as well as being an environmentally friendly alternative to mineral oil. Furthermore, the internal cooling system is built to withstand outside temperatures from -25°C to $+40^{\circ}\text{C}$ during operation.

Siemens Rail Systems won the bid to deliver 1,140 rail carriages for the British customer in 2011, a contract worth 1.8 billion euros and the biggest order Siemens has won in the UK to date. Siemens will also be responsible for the long-term maintenance of the train fleet.

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