

Another Siemens exhibit was the three-car **Desiro City Moorgate 717 017**, a short version (for exhibition purposes) of one of a batch of 25 six-car 25 kV AC overhead/750 V DC third rail EMUs ordered in 2016 by Govia Thameslink Railway (GTR). These are to replace the 44 three-car Class 313 EMUs, now the oldest EMU class in regular service in mainland Britain, built in 1976 - 77 for the initial stages of the East Coast Main Line electrification project (King's Cross to Royston, southwest of Cambridge).

The Class 717s are destined for the Great Northern group of services from London Moorgate and King's Cross to Welwyn Garden City, Hertford and Stevenage, where over the past 14 years patronage has doubled. Their 200 million GBP cost is being financed



by London-based Rock Rail Moorgate, a joint venture of Rock Rail Holdings (also London-based) and the Edinburgh-based Aberdeen Standard Investments. According to Siemens, this is the first time that British rolling stock financing has been provided through a direct long-term investment by pension and insurance companies.

The Class 717s are being built at Krefeld. The first two, 717 007 and 008, arrived in England on 11 July 2018 and were delivered to Ferme Park depot (near Hornsey), hauled by GBRf's 66745. These were followed by 717 005 and 009 on 18 July. By mid-October 2018 six more trains had been delivered. 717 017 (as a complete 6-car train) will depart for London from the PCW in November.

The design of the Class 717s is essentially similar to that of the large batch of Class 700/0 and 700/1 EMUs ordered by the Department for Transport for GTR's Bedford to Brighton core Thameslink route. The six-car train is 121,674 mm long, 2,800 mm wide, and 3,770 mm high above rail top. With a power rating of 1,200 kW, the 717s have a top service speed of 136 km/h (85 mph). Compared with the Class 700s, the 717s also have revised train control software.

Apart from being dual-voltage, they are also fitted with emergency evacuation doors and flights of steps in their cab ends. This is on account of the restricted side clearances in the tunnels between Drayton Park and Moorgate.



Photo: Jaromir Pernicka



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The provision of the emergency exit doors means that the **driver's seat** is on the left-hand side of the cab, rather than centrally positioned, and the driving console is designed so that part of it can be swung inwards, to provide a clear exit.

The **front flaps** of the emergency exit doors (upper left-hand photo) are produced by Qantos of Weiden, Germany, using Cellobond J2027, a Hexion phenolic resin system for lightweight exterior composite components which must be extremely fire resistant, easy to process and mechanically tough.

The front end **evacuation system** (upper right-hand photo) for use in the single track tunnels on the Moorgate route is produced by Schliess- und Sicherungssysteme GmbH, of Mülhausen. The flight of steps descends 1,310 mm, at an angle of of 36°, and is 941 mm wide overall. The entire structure when unfolded is 1,860 mm high, and requires a clearance for opening of 665 mm at its upper end and 450 mm at its lower end. It is activated with a spring system and dampening cylin-

ders, does not include an electric drive, and takes just 12 seconds to fully open. With a full load of passengers on the steps the entire flight sags by just 50 mm.

The passenger accommodation is designed for relatively short suburban journeys, the trains being fully gangwayed, with wide gangways to increase standee capacity. Interior floor height is 1,100 mm above rail top. There are no WC cubicles, although provision has been made for their retrofitting. The fitting of 2 + 2 seating results in 775 mm wide aisles.

In all there are 362 **seats**, including 64 designated as „priority“ seating, and 15 tip-ups, the design involving the seat units being cantilevered from the side-wall (see lower photo). Whereas the Class 700s do not have power sockets in their seats, these are installed on the 717s. The Desiro City Moorgate EMUs are also standard class only. There is sufficient space for up to 581 standees, at a density of four per m². There are also two wheelchair spaces.

The double-leaf entrance **doors** are exceptionally wide, at 1,500 mm

