



UK, Modernisation Class 455

MODERNISATION OF THE CLASS 455 VEHICLES, PORTERBROOK MAINTENANCE, LIMITED

The British rolling stock of the type "Class 455" were manufactured by BREL York Works in 1982 – 1985 for public transport. Porterbrook Maintenance Limited owns 91 vehicles of this type and has awarded Kiepe Electric with the modernisation of the Train traction system.

The Class 455 vehicles are supplied with DC 750V via a third rail. The scope of modernisation includes the complete replacement of the old DC traction by a new powerful and energy efficient AC traction system.

The new AC traction system is designed as an axle selective system to achieve the optimal traction and recuperation values. The brake system has been adapted to the new dynamic requirements. The new IGBT traction inverters recuperates the braking energy to the network. Depending on the track and driving profile 10–30% of energy consumption can be reduced.

The low-maintenance AC traction motors lower the service and maintenance costs and increase the availability. Side effects:

- The use of the electro-dynamic brake reduces the abrasion of the mechanical brake.
- The improved traction characteristics also allow a dynamic adherence to the timetable and optimize the driving and stopping times.

The comprehensive modernisation package, including vehicle and material logistics, installation and assembly, as well as the authorization management were provided by Kiepe Electric UK. The homologation of the trains were carried out in close coordination with the admission authorities.

PROJECT CHARACTERISTICS

- 4-car EMU
- 4 powered axles
- Axle-selective drive
- Low-maintenance asynchronous motors
- IGBT traction converters
- Braking energy recuperated
- New brake system
- Optimised wheel-slide / skip protection

VEHICLE DATA

Design	4-car EMU (DTSO-TSO-MSO-DTSO)
Type	Class 455
Gauge	1,435 mm
Maximum speed	120 km/h (~75 mph)
Line voltage	DC 750 V (3 rd rail)
Axle arrangement	2'2'+Bo'Bo'+2'2'+2'2'
Vehicle length	81 m
Vehicle mass (tare)	146 t
Vehicle mass (full)	210 t
Wheel diameter new / worn	925 mm / 867 mm
Traction equipment	4 traction converters with 300 kW output power per converter
Traction motor	4 x 300 kW AC asynchronous motors (2 per bogie of the MSO car)
Traction control	LiTeCon control modules

Subject to change without notice.

TECHNICAL ILLUSTRATION



Traction converter TU 600

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