



METRO MERSEYRAIL EMU

Merseytravel, Liverpool (UK)

In February 2017, Merseytravel ordered 52 new EMUs from Stadler for a complete fleet renewal on the Merseyrail urban network serving the Wirral and Northern Lines within Merseyside. The modern Stadler EMUs provide an additional boost to an intensively used network that already is one of the most punctual and reliable railway networks in the UK, with consistently high ratings for customer satisfaction. Stadler has conceived a vehicle that addresses the specific needs of the customer and provides world-class facilities for Merseyrail's passengers. The lightweight articulated four-car units allow for an efficient and cost-effective operation. The low-floor vehicle solution combined with standardised platforms offers level entrance throughout the network, a novel feature for UK mainline rail systems. The units are future-proof, having been prepared for the retrofit of ERTMS and dual voltage equipment, and thus comply with the Liverpool City Region Long Term Rail Strategy. The interior of the vehicles is bright and open. Optimum use has been made of the space available and dedicated areas have been created for wheelchairs, prams, luggage and bicycles. This interior concept will enhance the passenger's perception of safety, with full CCTV coverage, protective systems for door operation and clear warning indicators. Power is supplied via third rail at 750 V DC. The vehicles are designed for a maximum running speed of 120 km/h. Efficient thermal and acoustic isolation ensure a comfortable passenger environment, and newly developed bogies with pneumatic suspension contribute to a smoother ride. After securing authorisation in July 2021, the first unit was accepted in August 2021.

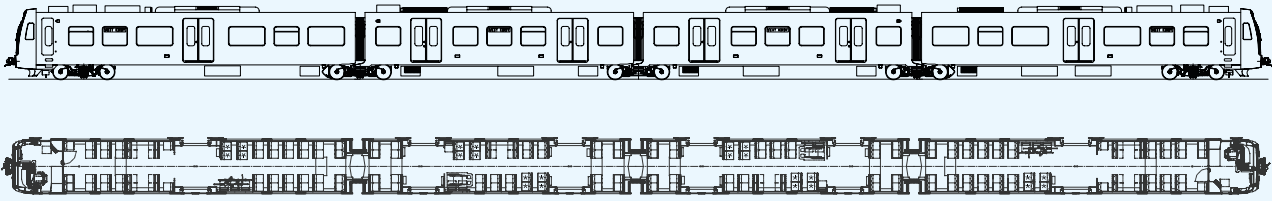
www.stadlerrail.com

Stadler Rail Group

Ernst-Stadler-Strasse 1
CH-9565 Bussnang
Phone +41 71 626 21 20
stadler.rail@stadlerrail.com

Stadler Rheintal AG

Neudorfstrasse 8
CH-9430 St. Margrethen
Phone +41 58 595 50 00
empfang.star@stadlerrail.com



Technical features

Technology

- Electrical Front door combined with a sliding step for front evacuation and detrainment between two units (patented solution)
- Lightweight carriage body made of extruded aluminium profiles
- Newly developed Jacobs motor bogies and trailer bogies with internal bogie frames and pneumatic suspension
- Plug sliding doors and sliding steps for level entrance
- Prepared for later retrofit of ERTMS and 25 kV power supply equipment
- Powerful train batteries allowing depot movements independently of power supply; units are designed to allow later installation of energy storage systems
- Vehicle meets the highest fire protection requirements EN45545-2 Level HL3

Comfort

- Bright, passenger-friendly interior with an iconic design
- Six entrance doorways on each side for rapid passenger flow
- Level access at all entrances
- Spacious multifunction areas and wheelchair spaces
- Advanced passenger information system, CCTV and TCIS (Train Connectivity and Information System)
- Powerful HVAC system

Personnel

- Spacious cab with excellent driver sight lines
- Ergonomically designed driver's desk
- Automated cab side doors for comfortable access

Reliability/Availability/Maintainability/Safety

- Redundant drive equipment with maintenance-friendly air-cooled IGBT power converters
- Remote vehicle diagnostics to support condition-based maintenance

Vehicle data

Customer	Merseytravel
Area serviced	Merseyside, UK
Gauge	1435 mm
Supply voltage	750 V DC
Axle arrangement	2'(Bo)'(Bo)'(Bo)' 2'
Number of units	52
Commissioning (planned)	2019 – 2021
Seats (standard class only)	162
Tip-up seats	22
Standing capacity (4 pers./m²)	302
Floor height	960 mm
Entrance width	1300 mm
Coupler compression load	1500 kN
Unit length	64 980 mm
Vehicle width	2820 mm
Vehicle height	3828 mm
Bogie wheelbase	2400 mm
Driving wheel diameter, new	760 mm
Trailer wheel diameter, new	760 mm
Continuous output at wheel	1500 kW
Maximum output at wheel	2100 kW
Starting tractive effort (up to 46 km/h)	162 kN
Starting acceleration, gross	1,1 m/s ²
Maximum speed	120 km/h