



## 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.

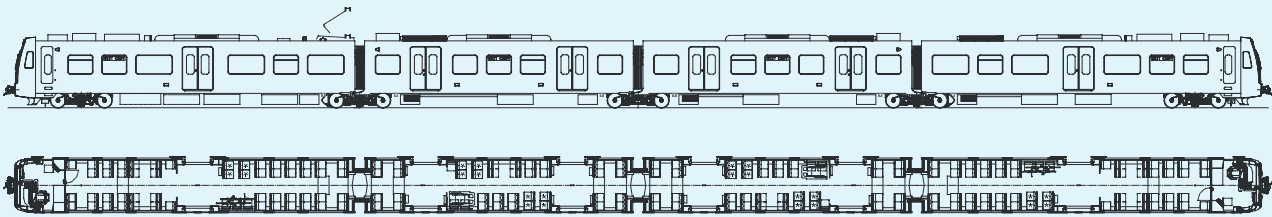
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## Technical features

### Technology

- Lightweight carriage body made of extruded aluminium profiles
- Newly developed Jacobs motor bogies and trailer bogies with internal bogie frames and pneumatic suspension
- Modern vehicle control system
- Automatic front coupler for multiple operation
- 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

### 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
- Modern passenger information system and CCTV
- 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
- Automated front bridging system for comfortable staff movement and safe passenger evacuation

## Vehicle data

<b>Customer</b>	Merseytravel
<b>Area serviced</b>	Merseyside, UK
<b>Gauge</b>	1435 mm
<b>Supply voltage</b>	750 V DC
<b>Axle arrangement</b>	2'(Bo)'(Bo)'(Bo)' 2'
<b>Number of units</b>	52
<b>Commissioning (planned)</b>	2019–2020
<b>Seats (standard class only)</b>	182
<b>Tip-up seats</b>	8
<b>Standing capacity (4 pers./m<sup>2</sup>)</b>	302
<b>Floor height</b>	960 mm
<b>Entrance width</b>	1300 mm
<b>Coupler compression load</b>	1500 kN
<b>Unit length</b>	64980 mm
<b>Vehicle width</b>	2820 mm
<b>Vehicle height</b>	3828 mm
<b>Bogie wheelbase</b>	2400 mm
<b>Driving wheel diameter, new</b>	760 mm
<b>Trailer wheel diameter, new</b>	760 mm
<b>Continuous output at wheel</b>	1500 kW
<b>Maximum output at wheel</b>	2100 kW
<b>Starting tractive effort</b>	162 kN
<b>(up to 46 km/h)</b>	
<b>Starting acceleration, gross</b>	1.1 m/s <sup>2</sup>
<b>Maximum speed</b>	120 km/h