



## 22 FOUR-CAR METRO TRAINS

# Bangkok BTSC Green Line

In May 2016, Bangkok Mass Transit System Public Company (BTSC) placed an order with a consortium comprising Siemens and the Turkish public transportation vehicle manufacturer Bozankaya for the delivery of 22 four-car metro trains. In addition, Siemens will take over their service and maintenance for 16 years.

The project follows the successful delivery of 35 three-car units for Bangkok's first metro, Skytrain, in 1999. Another contract for 19 three-car units was awarded to Siemens in 2002 for the new MRTA metro system in Bangkok.

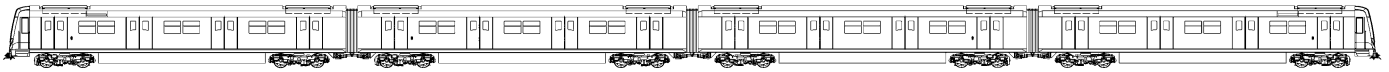
The Siemens scope for the Green Line Extension trains includes the bogies, traction and braking systems, and auxiliary systems as well as the project management, development, construction, and commissioning of the trains. The trains were manufactured at the Bozankaya factory in Ankara, Turkey.

The first trains were delivered in mid-2018, and all vehicles have been in passenger service since December 2019. The trains are operating on the existing BTS (Skytrain) system and the Green Line extensions and help boost the capacity of the lines to over one million passengers per day.

There was a strong focus on reducing lifecycle costs in the design phase. The carbodies are made of lightweight stainless-steel, which reduces energy consumption. The optimized interior layout increases passenger capacity. Four electrically powered 1,400 mm-wide outside sliding doors are arranged on each side of the cars to allow passengers to board and leave the train rapidly, reducing the time the trains spend in the stations. This increases overall system capacity.

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The passengers' comfort is enhanced by an extremely effective high-performance air-conditioning system, which responds to weather conditions, prevailing high temperatures, and humidity levels.

## Highlights

- Reliable operation thanks to proven technology and high redundancies in the traction system – one converter drives two motors
- Maintainability of the trains has been optimized based on Siemens' long-term experience in Bangkok
- Low-wear mechanical brake and high stopping accuracy thanks to dynamic braking to standstill
- A lightweight stainless-steel car body and state-of-the-art traction technology reduce energy consumption
- Interior and exterior LED lights reduce maintenance costs and energy consumption
- The redesigned interior increases passenger capacity compared with predecessor vehicles
- An innovative air diffuser system has been implemented for an efficient and comfortable air supply; it also prevents water condensation
- High safety level according to latest standards EN 50126, 50128, 50129 and IEC 61508
- Fire safety according to NFPA 130/ EN 45545

### Technical data

|   |                              |
|---|------------------------------|
| Train configuration                                     | Mc+T+T+Mc                    |
| Wheel arrangement                                       | Bo'Bo'+2'2'+2'2'+Bo'Bo'      |
| Car body material                                       | Stainless steel              |
| Track gauge   | 1,435 mm                     |
| Length over couplers                                    | 86,600 mm                    |
| Width of car  | 3,120 mm                     |
| Floor height above top of rail                          | 1,160 mm                     |
| Maximum axle load                                       | Approximately 15 t           |
| Number of seats per train                               | 112                          |
| Train capacity per train (6 passengers/m <sup>2</sup> ) | 1,208                        |
| Passenger doors per car                                 | 2 x 4 exterior sliding doors |
| Door width  | 1,400 mm                     |
| Maximum operating speed                                 | 80 km/h                      |
| Line voltage  | 750 V DC, third rail         |



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