

Second Production Run of the Light Rail Articulated Motor Cars

B80C-Z OF STADTWERKE BONN (SWB)



Stadtwerke Bonn (SWB) and the Electric Railways of the City of Bonn and the Rhein-Sieg District (SSB) operate a light rail network with a total length of 26.8 km.

Among other vehicles, 35 Type B articulated light rail cars from the 1st and 2nd series operate on this network. These vehicles were built by DUEWAG for SWB and SSB between 1974 and 1975.

Project features

While the basic structure of the vehicles is still in very good condition after nearly 40 years of service, obsolescence issues are increasingly becoming apparent, particularly with regard to the electrical components.

For this reason, SWB and SSB have decided to begin a comprehensive modernization—known as “rebuilding”—of 25 of these railcars starting in 2011. As part of this process, the passenger compartment will also be modernized and the driver’s cab redesigned.

For the electrical systems, the plan inclu-

des replacing the drive equipment, consisting of 2 GAA 200 IGBT DC converters with 2 associated ASM drive control units, braking resistors, and the refurbishment of the traction motors, control switches, and brake control switches.

In addition, a new static onboard power converter, auxiliary equipment converters, driver’s cab air conditioning, instrument panels, various equipment racks, video surveillance, a smoke detection system, and passenger intercoms will be installed. Powerful diagnostic software will also be implemented.

- Modern contactless DC converter
- Modular drive control system
- High-performance static onboard power supply
- Powerful diagnostic tool
- Driver’s cab climate control

Vehicle data

Design	Six-axle articulated light rail motor car
Type	Before the second version: B100S; thereafter: B80C-Z
Track width	1.435 mm
Maximum speed	80 km/h
Mains voltage	DC 750 V (+20 %, -30 %)
Wheel Set Sequence	Bx'[2]By'
Car body length/ width (excluding sheet metal)	26.900 mm / 2.650 mm
Vehicle weight (empty)	40.700 kg
Wheel diameter (new) / (worn)	746 / 660 mm
Gear ratio	4,455 : 1
Drive Equipment	2 GAA 200 contactless IGBT DC converters with 250 kW output power
Drive Motor	2 longitudinal, self-ventilated, DC series-wound motors 1KB 2021-2 ME02
Drive Control	2 Drive Control Systems with Microprocessor Technology (ASM Drive Control Module Combination and CSM DC Drive Module Combination)
Vehicle Electrical System	BNU 543 Static Onboard Inverter with Modular Design
Vehicle Electrical System Outputs	3AC 400/230 V, 100 Hz, 20 kVA DC 24 V (+20 %, -30 %), 250 A continuous
Air Conditioning Equipment Supply	KGU 203 Static Air Conditioning Unit Inverter with Modular Design 3AC 400/230 V, 50 Hz, 15 kVA

Subject to change without notice

Technical drawing

