BLS AG ordered 31 four-car double-decker multiple units for the further development of the Bern suburban rail system from Stadler. This was the biggest investment in rolling stock in the company’s history. With these new trains, BLS will be able to meet the increasing demand and offer its passengers greater space and comfort within the Bern suburban rail network. They are standardising their fleet for the long term in favour of more cost-effective operation. The new trains reach a maximum speed of 160 km/h and comply with the EN 15227 standard. With their 335 passenger seats and 566 standing spaces, and a maximum capacity of 901 passengers per trainset, they have space to accommodate future growth in demand. The panel heating in the new KISS (the name is an acronym of the German for comfortable innovative speedy suburban train) allows particularly generous seating arrangements. At the same time, the multifunctional compartments offer sufficient space for prams and bicycles.
Technical features

Technology

- Lightweight car bodies in integral aluminium design in line with the latest standards for crashworthiness (EN 15227) and car body strength (EN 12663)
- Motor bogies and trailer bogies with pneumatic suspension
- Car body made of extruded aluminium profiles in accordance with EN 15227, scenarios 1, 2, 3 and 4
- Multiple unit train control for up to 4 vehicles

Comfort

- HVAC systems for passenger compartments and drivers’ cabs, with fresh air circulating via the perforated ceiling, and a panel heating system
- Bright, passenger-friendly interior with scope for individual design
- Generously dimensioned entrance areas for optimum passenger flow
- 8 entrance doors on each side for a rapid exchange of passengers
- Two toilets, one with wheelchair access and changing table
- Spacious standing areas
- Electric sockets in first class

Personnel

- Ergonomically and comfortably designed working environment to prevent driver fatigue
- User-friendly passenger information systems
- Driver’s cab for operation with driver and assistant

Reliability/Availability/Maintainability/Safety

- Vehicle control system with train bus and diagnostics computer (CANopen bus)
- Redundant drive equipment with four power trains with water-cooled IGBT power converters
- Clear layout of passenger compartments for passenger orientation and safety

Vehicle data

Customer: BLS AG

Lines serviced: Suburban railway in Bern (S1, S3, S31, S6)

Gauge: 1435 mm

Designation: RABe 515 001-031

Supply voltage: 15 kVAC, 16.7 Hz

Axle arrangement: Bo’Bo’ + 2’2’ + 2’2’ + Bo’Bo’

Number of vehicles: 28 + 3

Start of operation: 2012/2017

Seats, first and second class: 61 + 274

Tip-up seats: 0

Standing capacity (4 pers./m²): 566

Wheelchair spaces:
  - First class: 1
  - Second class: 2

Bicycle spaces: 6

Floor height:
  - Low-floor at entrance door: 570 mm
  - Lower deck: 440 mm
  - Upper deck: 2515 mm

Entrance width: 1400 mm

Headroom: 2000 mm

Length over coupling: 102240 mm

Vehicle width: 2800 mm

Vehicle height: 4595 mm

Bogie wheelbase:
  - Motor bogie: 2500 mm
  - Trailer bogie: 2500 mm

Driving wheel diameter, new: 920 mm

Carrying wheel diameter, new: 920 mm

Continuous output at wheel: 4000 kW

Maximum output at wheel: 6000 kW

Starting tractive effort:
  - (up to 54 km/h): 400 kN
  - Starting acceleration: 1.3 m/s²

Maximum speed: 160 km/h