In December 2003, BZB ordered four rack-and-pinion and adhesion dual-traction units from Stadler. They are designed for use on the stretch from Garmisch-Partenkirchen via Grainau to Zugspitzplatt. The terminus on Zugspitzplatt is 2600 metres above sea level, and Zugspitze is considered the most popular excursion destination in Germany. The 18.7-kilometre stretch covers a gradient of up to 250‰ in the rack-and-pinion section. The high-performance all-axle drive even allows the train to pull a freight wagon up the mountain. All passenger compartments and driver’s cabs are air-conditioned. The large windows guarantee a bright, open interior. A modern passenger information system provides travellers with relevant information. The entrance area includes generous multifunctional zones.
Technical features

Vehicle data

- Lightweight car body made of steel
- Minimum curve radius: 80 metres
- High-performance drive equipment consisting of three IGBT power converters and six self-ventilated asynchronous motors

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- High-performance drive equipment consisting of three IGBT power converters and six self-ventilated asynchronous motors

- Selectron MAS control and communication system with full-colour display in driver’s cab

- Fire detectors and extinguisher systems based on fire safety regulations for tunnel operation
- Automatic train control
- Remote-controlled front doors for evacuation in tunnels

Customer
Bayerische Zugspitzbahn Bergbahn AG (BZB)

Lines serviced
Garmisch-Partenkirchen–Grainau–Zugspitzplatt

Gauge
1000 mm

Designation
DTw 12, 14–16

Supply voltage
1650 VDC

Axle arrangement
Bo’Bo’Bo’

Number of vehicles
4

Commissioning
2006

Seats
102

Tip-up seats
4

Standing capacity
74

Floor height

<table>
<thead>
<tr>
<th>Entrance</th>
<th>950 mm</th>
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<tbody>
<tr>
<td>Compartment</td>
<td>1100 mm</td>
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Entrance width
1600 mm

Axial thrust
400 kN

Length over coupling
30600 mm

Vehicle width
2500 mm

Vehicle height
3450 mm

Bogie wheelbase
2720 mm

Driving wheel diameter, new
875 mm

Max. output at wheel
1680 kW

Starting tractive effort
300 kN (rack-and-pinion)

| Adhesion | 140 kN (adhesion) |

Maximum speeds

| Uphill | 30 (40) km/h |
| Downhill up to 140‰ | 20 km/h, 140‰ to 250‰ 15 km/h |
| Adhesion | 70 km/h |